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Framing the Lowcountry: The Evolution of the Region's Vernacular Tradition

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FRAMING THE LOWCOUNTRY: THE EVOLUTION OF THE REGION'S
VERNACULAR TRADITION

A Thesis
Presented to
the Graduate Schools of
Clemson University and College of Charleston

In Partial Fulfillment
of the Requirements for the Degree
Master of Science
Historic Preservation

by
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May 2016

Accepted by:
Carter L. Hudgins, Committee Chair
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ABSTRACT

Timber-framing systems are the foundation of Early Modern vernacular architecture traditions. The fabrication, construction, and finish details of such assemblies are indexes of the character-defining features of building practices and the wider socio-cultural context. The Lowcountry of South Carolina is no exception. From the late seventeenth-century onwards builders from Old World traditions came together to erect unrivalled British edifices in the colonial and Early Republic periods. While other scholars have closely scrutinized and interpreted the framing traditions of the Chesapeake and New England, there has yet to be a consideration of the nature and evolution of the Lowcountry's framing. Bringing together architectural evidence from fifteen sites in the region, this study explores the emergence and evolution of the Lowcountry frame, ultimately positioning the region's vernacular landscape within the context of the British Atlantic world.

DEDICATION

To my parents and sister for their tireless support, last one, I promise.

ACKNOWLEDGEMENTS

This work would not have been possible without the robust support of my committee, Carter L. Hudgins, Moby Marks, and Willie Graham. Thanks also go to Tommy Graham and Craig Bennett who provided support as well as introductions to many of the property owners. Most important, thanks go to all the owners who graciously allowed me to scramble inside and outside of their buildings. I would also like to acknowledge Stéphanie Cretté for her patience in allowing me to research, write, and complete this thesis over the last year.

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CHAPTER ONE: FRAMING THE LOWCOUNTRY

Framing as Building Solution

Framing systems are answers to building problems. Socio-manifestations material cultural specialists can probe building choices to locate and construct meaning in the built environment. Within these meanings questions of scale abound. Important among these is how does one link individual choices in construction, such as the planning of king post members, and the choice scarf joint of a wall plate, with wider construction practices. More broadly, can we, as David Shields asked, “find region in material culture?”¹

The answer is yes and no. Yes in the sense there are definable broad patterns of distinctive material culture processes that are recognizable at the local level. For example, the Charleston single house was one urban regional expression that appeared as a solution at the confluence of ecological, climatological, socio-cultural, and economic forces. At the same time the answer to this question is also no. Ideas, practices, and experiences are ported in time and space. The earliest congregants to the Carolina colony came from points abroad, for example Barbados, Bermuda, and London among other locales. Their experiences-- the learned practices in those locales--were transported to the space which is now called the Lowcountry, they simmered in the Carolina heat and were deployed and employed in contextual ways, as products of

¹ David S Shields, *Material Culture in Anglo-America: Regional Identity and Urbanity in the Tidewater, Lowcountry, and Caribbean* (Columbia: University of South Carolina Press, 2009), 1.

circumstance. In both the cases of yes and no, socio-cultural practices were answers to questions. In the simplest of forms, Carolina colonists had to ask, how do we *build* a building here in this hot, swampy, and mosquito-infested region? Call it adaptation, creolization, or practice-based emergence, distinctive forms based on local, regional, and global forces shaped the advent of the Lowcountry's vernacular building culture. Within this set of practices, the designs and methods of framing systems were means to an end, the vehicles through which architectural spaces were structured and covered. They were the answers to some of the building questions.

The evolution of the Lowcountry's timber-framing tradition is thus an index of the region's broader socio-cultural rhythms. By examining the changing vernacular framing practices present throughout the region, we will come to a better understanding of the negotiation between endeavored social spaces and practical building solutions.

The built environment, including framing systems, is a product of place—the unique constellation of circumstances, knowledge, and environmental conditions that give rise to architectural forms. The Lowcountry is a product of particular circumstances which pushed early settlers to 'adapt' and 'innovate' their architectural ideas, translating notions of framing to the socio-cultural and environmental context of the region.² This study spans some 150 years from the inception of the colony and its

² The notion of "adaptation" and "innovation" here is drawn from the seminal work of Willie Graham, Carter Hudgins, Carl Lounsbury, Fraser Neiman, and James Wittenburg's work on the development of the

earliest buildings to the first third of the nineteenth-century, the beginning of the decline of Charleston's cultural and economic apogee during the Antebellum period. Geographically, this study spans the breadth of the Carolina Lowcountry with sites as far north as Hopsewee Plantation north of the Santee Delta to as far south as Savannah and the Georgia Sea Islands. The majority of sites lie in Charleston and her hinterland crosscutting the urban and rural divide. Whereas previous scholars have highlighted particular roofing systems—particularly king and queen post trusses, here I am interested in the evolution of roof forms, their execution over time including details related to the individual framing members.³ Previous studies have focused primarily on Charleston proper with reference to a handful of properties in rural contexts. Here, I consider buildings both in Charleston as well as in her hinterlands, adding a spatial variable to the development of the region's framing tradition. Beyond surviving architectural evidence, this study will also incorporate archival and archaeological evidence into its study of framing the framing traditions in the Lowcountry.

Chesapeake's built environment. There they argue for the complex processes of adaptation and innovation of lifeways over the first century of settlement. In the sum they argue that while colonists brought particular ideas and practices from England, the Chesapeake environment and its social circumstances dictated that new material articulations emerge that were a program of that context. A similar notion will be explored in this thesis as the origins of framing system from England and elsewhere were brought to the Carolina colony, new systems and ideas formed as a product of place, and new systems formed over time. See, Willie Graham et al., "Adaptation and Innovation: Archaeological and Architectural Perspectives on the Seventeenth-Century Chesapeake," *The William and Mary Quarterly* 64, no. 3 (July 1, 2007): 451–522.

³Pamela Kendrick, "The Charleston Trussed Roof: a Study of the Development and Implementation of a Structural Solution From 1740-1820" 2013.

Interpreting Meaning

The challenge of interpreting and understanding Early Modern framing systems and roof forms is the fact that they were not openly intended for display. So much of socio-cultural meaning during this period (and how we understand it as researchers) is bound up in the notion of seeing and being seen. Molding profiles, props and gentile practice, and wall finishes were all visual, and more widely sensual aspects of constructed, contextual meaning. Roof systems defy these visual components of building culture and its meaning.

By the Early Modern Period, framing systems were designed to be hidden away—covered, plastered, and finished. They were not components of visual display. Gone were the days of exposed interior or exterior studding to project one's ability to procure such materials.⁴ Instead this period only provides glimpses of framing systems for researchers on surviving buildings of higher status. At the same time lower status timber-framed structures such as those most commonly occupied by enslaved Africans and later Free Blacks have a majority of the framing system in sight—exposed studs and ceilings open to the ridge providing an unadulterated view of the holistic framing system and a rare chance to see how the standing walls connect to the roof systems. Due to their fragile nature, these buildings are becoming more rare.⁵

⁴ See Matthew Johnson, *English Houses 1300–1800 Vernacular Architecture, Social Life* (London: Routledge, 2010) for a discussion of medieval building practices and their meaning.

⁵ See John Michael Vlach, *Back of the Big House: The Architecture of Plantation Slavery* (Chapel Hill: University of North Carolina Press, 1993).

This reality creates a bias in the dataset and more generally in our understanding of the evolution of framing systems and their comparison to other regional systems. We have ample evidence for roof framing systems in middling, elite houses, and public buildings but relatively little information about the studs and lower frames. The exceptions to this statement are the instances when researchers are present when walls are taken down or the rare building that has exposed studding in this dataset the great house at Hampton Plantation. Many more of these elite residences by their very nature have been constructed to be robust enough to survive into the twenty-first century. While fewer examples of quarters and kitchens survive, they provide far and away more holistic information of framing systems. In many instances, ironically in contrast to their higher status counterparts, the roof systems on smaller more modest structures have often been replaced having been lost in storms.

Design and Influence in Lowcountry Architecture and Framing

English metropolitan and vernacular design had a broad-based influence on the emergence of colonial architectural forms and much of the systems used in the Lowcountry are derived from English framing traditions.⁶ Early modern fixations of classicism, balance, and order as was present throughout the Georgian and Federal periods drove decisions of style, form, and execution in the Lowcountry. Designs from

⁶ In this work I use the word English to denote the framing systems from England as a space. While later one might denote these as “British” techniques, in this context I will use “English” as the covering term.

metropolitan architects made their way west both in the training of highly skilled artisans as well as in patterns books. But on a deeper level, the most glaring implementation of fashionable metropolitan design in the Lowcountry lie in the urban design of Charleston herself. The implementation of John Locke and Lord Shaftsbury's gridded city plan for the new capital leveraged straight lines and a grid pattern to provide order to the city. And so Charleston's landscape is inexorably embedded with metropolitan ideas planted by individuals who never set foot in the Carolina Lowcountry.

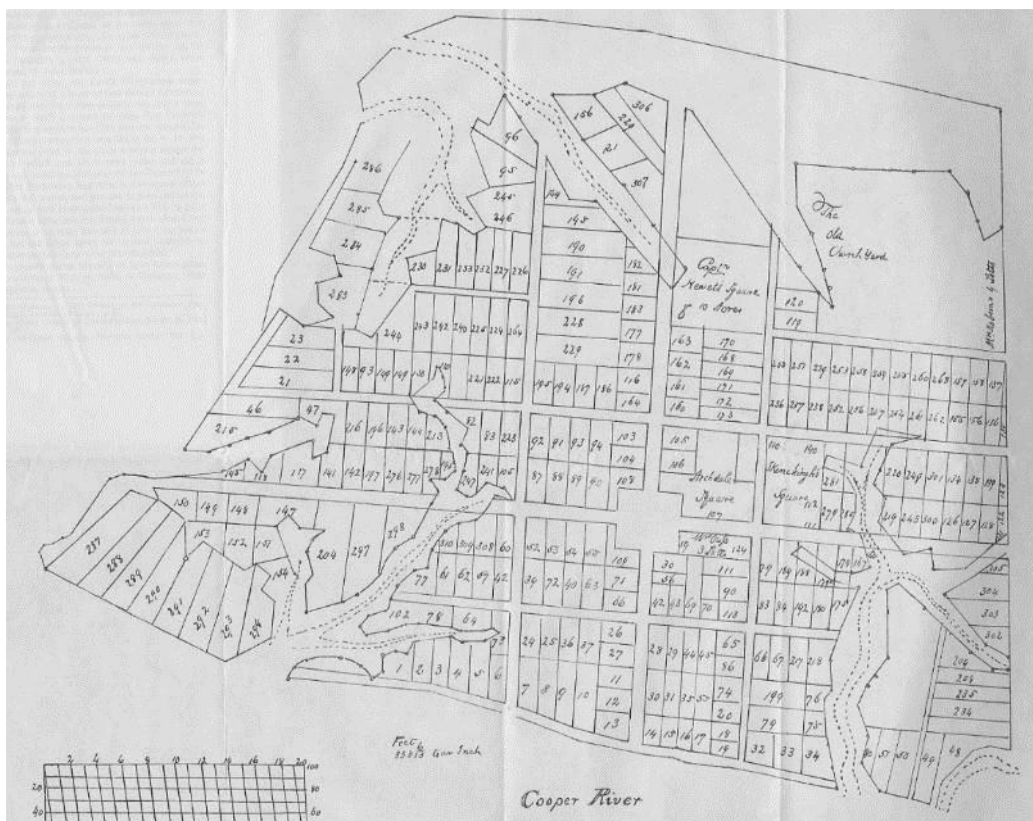


Figure 1: Charleston's Grand Modell (Image: Carolina Room, B. Fortenberry)

If the city plan was a product of metropolitan design, so was the earliest building stock. Indeed, Charleston's earliest town houses were colonial transplants from London and her sister west country port towns. Center-entry, five-bay wide edifices that dot lower Church Street, such as 59 Church (Thomas Rose House) look just as comfortable on the peninsula as they would in the English streets of Bristol and Liverpool.⁷ It took several generations for the Lowcountry's urban vernacular to take shape. Ironically, Charleston's building patterns were a product of the spatial realities of Locke and Shaftsbury's Grand Modell. By laying out lots whose frontages are deeper than they are wide to the street frontage, Charlestonians eventually developed its local solution—the Charleston single house. This house form oriented with its narrow axis to the street frontage with opening to a side yard. Piazzas served as the liminal transitions space between both outside and inside the structure as well as the exterior and interior of urban walled compounds. These city landscapes were the best way that urban dwellers fit urbane life within the imposed property boundaries of the colonial founder's generation.⁸ It is in this long eighteenth century that architectural historians can discern the sorting out process of style, form, and frame in the Carolina Lowcountry. Unfortunately, our sample is biased towards the most extravagant examples their robustness and grandeur (linked directly to owner's wealth) ensured their survival.

⁷ Bernard L. Herman, *Town House: Architecture and Material Life in the Early American City, 1780-1830* (Chapel Hill: Published for the Institute of Early American History and Culture, Williamsburg, VA., by University of North Carolina Press, 2005), 29.

⁸ Bernard L. Herman, "The Embedded Landscapes of the Charleston Single House, 1780-1820," *Perspectives in Vernacular Architecture* 7, no. 1997 (2008): 41–57.

The Lowcountry and Its Importance

The Lowcountry of South Carolina and Georgia comprises a unique set of environmental, socio-cultural, and historic resources. It boasts an unrivalled landscape that echoes the region's pre- and post-contact past, most notably the systematic transformation of a swampy peninsula into a colonial regional capital and the marshes and coastal sea islands into a patchwork of inter-connected coastal and inland rice fields. These processes gave rise to an unprecedented supra-regional landscape, an Atlantic hub of wealth, society, and capitalism built on the foundation of early modern British colonialism and West African enslavement.

The physical boundaries of the Lowcountry are, as with any regional approach, defined by historical and contemporary notions of geography and place. Ecologically, the region is framed by coastal sandhills, marshlands, and estuaries, which created the boundary between the foothills of the midlands region (somewhere around Orangeburg South Carolina) and the Atlantic seaboard. Today the area roughly includes Georgetown, Charleston, Colleton, Beaufort and Jasper Counties. Extending beyond the boundaries of modern-day South Carolina, the Lowcountry reaches as far south as the Georgia Sea Islands from Chatham to Camden counties along the coast. The western boundaries of the Lowcountry are more informal and are defined by the rising of the midlands hills around Orangeburg and to the west. The midlands formed the buffer zone to what would be considered the "back country" in the seventeenth and eighteenth centuries, a zone which pushed west as the colony's population grew throughout the late

eighteenth and nineteenth centuries. For this study, a majority of the sites are drawn from the Carolina Lowcountry from Charleston, Georgetown, Colleton, and Beaufort counties, with a sampling of sites from Savannah's immediate area.

Socio-culturally, the Lowcountry was a connection point between world's old and new. Still, too, it was an inter-colonial hub with trade, social, and familial relationships from Bridgetown in Barbados, Boston, and London, the Lowcountry epitomizes Alison Games' notion of the early modern "Web of Empire".⁹ Settlers from England, Virginia, Bermuda, and most notably at the outset of the colony from Barbados brought their experiences to the region throughout the Colonial and Early Republic periods. There needs to be an acknowledgement of the region's connection to the broader English and later British Atlantic world. Mulchaly has successfully argued that the Carolina Lowcountry should be understood not so much as part of the English southern colonies of the North America, but rather as the northwest corner of the "Greater British Caribbean" encompassing an area including Bermuda at its northeast corner, Barbados at its southeast corner, and British Guyana at its southwest corner.¹⁰

⁹ Alison Games, *The Web of Empire: English Cosmopolitans in an Age of Expansion, 1560-1660* (Oxford: Oxford University Press, 2008).

¹⁰ Matthew Mulcahy, *Hubs of Empire: The Southeastern Lowcountry and British Caribbean* (Baltimore: Johns Hopkins University Press, 2014).

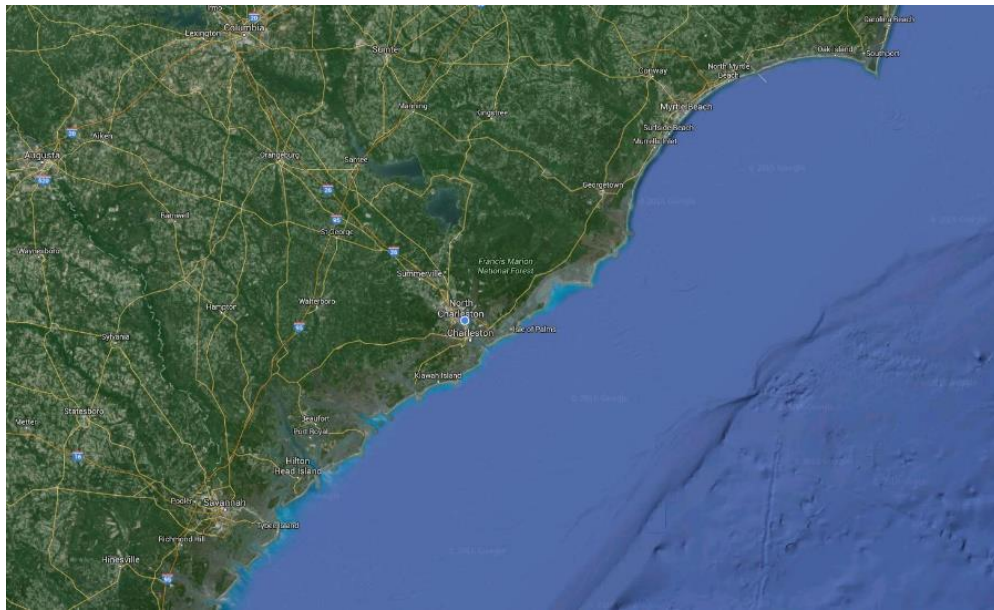


Figure 2: Carolina Lowcountry (Image: Google Maps)

Biased Dataset

One of the greatest challenges for studying the built environment of the Lowcountry is that we know so little beyond the surviving buildings in the landscape. That is to say, the region possesses a paucity of excavated and interpreted archaeological evidence to supplement the standing architectural landscape, when compared with other regions in the Atlantic world. For example, scholars of the Chesapeake Region have systematically charted the evolution of the region's vernacular from the seventeenth century onwards. Using archaeological evidence juxtaposed with standing architectural evidence from as

early as James Fort (1607) to the early nineteenth century.¹¹ Over the last thirty years, an interdisciplinary group of scholars from historians, archaeologists, and architectural historians have successfully argued for the “adaptation” of traditional forms followed by the “innovation” with respect to the building technology and form of England’s earliest sustained colony. They identified the earliest forms as being derived from the English vernacular which then evolved into a more suitable fabric for the social, economic, and environmental conditions for the Chesapeake. The Virginia House was a mutual solution to these conditions.¹² A more modest research effort in the Lowcountry has limited data about lost landscapes. While archaeologists have worked tirelessly in the region for the past thirty years there has not been a systematic uncovering of the region’s archaeological landscape in the same way as the Chesapeake. A majority of this archaeological work comes from the cultural resource management sector. As a result, many of the discovered archaeological sites are “rescue” operations, where a comprehensive investigation of archaeological remains were not possible. An exception to this is the heroic work that Martha Zeiriden has undertaken over the last thirty years at the Charleston Museum. There, Martha has systematically uncovered the material remains of urban life, particularly the experiences of enslaved Africans at a litany of

¹¹ Cary Carson et al., “Impermanent Architecture in the Southern American Colonies,” *Winterthur Portfolio* 16, no. 2/3 (1981): 135–96.

¹² Cary Carson and Carl R Lounsbury, eds., *The Chesapeake House: Architectural Investigations by Colonial Williamsburg* (Chapel Hill: University of North Carolina Press, 2013).

Charleston backlot sites throughout the peninsula.¹³ Still too, seminal work by Leland Ferguson has also provided unprecedented evidence into the lifeways of enslaved Africans in the region.¹⁴

Interpretively, the reality of the sparseness of data comes into stark relief when trying to create the same architectural trajectory as our friends in the Chesapeake Bay region. Whereas the wealth of evidence from the Chesapeake enables scholars to explore the evolution and trajectory of the Chesapeake's vernacular form, the surviving evidence from the Lowcountry presents a more biased sample. The challenge for scholars in the Lowcountry region is exacerbated by the paucity of research institutions. In the Chesapeake, an assemblage of scholars, anchored by the architectural historians at the Colonial Williamsburg Foundation, have led the charge for interpreting and protecting the built environment of the region. Fewer robust institutional players exist in the Lowcountry. While scholars such as Carl Lounsbury, Bernie Herman, Louis Nelson, and Maurie McInnis have researched the region from afar, the Lowcountry has not been their home turf in the same way as the Chesapeake.¹⁵ Still too, the local institutional and educational partners—the College of Charleston Undergraduate Program in Historic

¹³ For example, Martha Zierden, "A Trans-Atlantic Merchant's House in Charleston: Archaeological Exploration of Refinement and Subsistence in an Urban Setting," *Historical Archaeology* 33, no. 3 (1999): 73–87, as one of her numerous works on the subject.

¹⁴ Leland Ferguson, *Uncommon Ground: Archaeology and Early African America, 1650-1800* (Washington D.C.: Smithsonian Institution, 2012).

¹⁵ Herman, "The Embedded Landscapes of the Charleston Single House, 1780-1820"; Louis P. Nelson, *The Beauty of Holiness Anglicanism and Architecture in Colonial South Carolina* (Chapel Hill: University of North Carolina Press, 2009); Maurie Dee McInnis, *The Politics of Taste in Antebellum Charleston* (Chapel Hill: University of North Carolina Press, 2005).

Preservation and Community Planning and the Clemson University/College of Charleston Joint Program in Historic Preservation-- do not have robust architectural history agendas within the curriculum sequences and instead primarily focus on issues of preservation and conservation.

These myriad factors coalesce in an under-sampling of surviving and studied historic properties in the region. Whereas scholars were able to create trajectories of the sorting process of the Chesapeake's vernacular traditions, we only have evidence for the winning formulas in the Lowcountry; only the victors are represented in the built environment. Adding further to the bias, the rapid growth of Charleston as a desired place to live and work has put further strain on the surviving buildings of the region. Despite these factors, the surviving built environment, a portion of which is presented and interpreted here, offers an unparalleled window into the vernacular landscape of the past.

Framing the Discussion

Moving ahead, Chapter Two lays out the wider comparative literature of framing technology and places this discussion within the framework of vernacular architecture studies, tracing discussions from England, to New England, the Chesapeake, and the Caribbean region. Chapter Three describes the study's methodology including the dataset, data capture process, and three themes which comprise the body of the work—Anglican edifices, domestic dwellings, and enslaved housing. Chapter Four

considers the religious buildings of the region probing the framing solutions for “public” buildings.¹⁶ This subset primarily engages with the Anglican Parish Churches and Chapels of Ease in the rural parishes with reference to the city churches of St. Michael’s, St. Philip’s, and the Cathedral of St. Luke’s and St. Paul’s; the rural churches and chapels are been neglected by previous studies, and as such this context is an opportunity to bring them into the discussion of Anglican building practices in the region. Chapter Five examines the evolution of domestic dwellings in both town and country using case studies as touch stone for the wider trajectory of framing technologies in the region. Beginning with archival and archaeological sources from Sea Islands of Georgia and Charles Towne Landing, the discussion proceeds to the eighteenth century examples of Drayton and Fenwick Halls, Hampton Plantation, and the Thomas Rose House, to later century examples of the Miles Brewton and Heyward Washington House, before concluding with early nineteenth century case studies from the Joseph Manigault and Aiken Rhett Houses. In exploring the range of framing choices that private individuals made from eighteenth and early nineteenth centuries, this chapter forms a cross-section of the Lowcountry building culture in both urban and rural contexts. The final theme in Chapter Six explores those buildings associated with enslaved Africans in the region: slave housing. Only a tiny sample survive of these once numerous dwellings and they are becoming scarce by the year. Chapter Six aims to begin the discuss of building

¹⁶ The use of the term public building to denote civic and religious structures that were erected for the public good.

culture in enslaved dwellings, and recognizes that more data needs to be collected to adequately address the subject. Time is not on the side of this endeavor as more are lost every year, examples from Middleburg, Hopsewee, McLeod, Silver Hill, and Mansfield, are discussed. These thematic categories cover the broad expanse of building forms, comprising a spatially and temporally representative sample of the region's building stock.

These thematic chapters center on the qualitative aspects of the dataset, the final chapter considers the quantitative aspects drawn from the qualitative categories. Here, the detailed framing schedule will be analyzed to chart changing building trends over time. They chart changes in joinery, milling, the dimension and shape of timber-frame members, the changing nature of roof shapes, and the introduction of the truss system and its implementation in different contexts. More broadly, this is a positional study to begin to think about how the Lowcountry fits in the context of the broader Atlantic world. To do, this the final chapter will chart the work completed in the Chesapeake, New England, Bermuda, and Jamaica situated within the trajectory of early modern English vernacular framing traditions.

CHAPTER TWO: FRAMING IN CONTEXT

The study of vernacular building practices has grown significantly since the discipline's maturation in the 1960s and 70s in North America. Seminal works have emerged over the last fifty years of scholarship: Abbott Lowell Cummings', *The Framed Houses of the Massachusetts Bay Colony* stands out as the earliest synthetic treatment of framing systems in North America. Similarly for regions south, Cary Carson, Dell Upton, Willie Graham and their colleagues have extensively explored the development of framing systems in the Chesapeake from their origins in earthfast architecture to articulated framing in rural contexts, flush framing in towns, and log construction further to the west on the frontier in the Piedmont.¹⁷

In contrast, the Lowcountry has been greatly understudied by the vernacular architecture community of North America and England despite its prominent socio-cultural role not just in the American South but also in the broader Atlantic world. As Carl Lounsbury points out, much of the challenge related to understanding the architectural history of the Lowcountry stems from the fact that Charleston and the region do not have a major university to undertake a sustained architectural research

¹⁷ Carson et al., "Impermanent Architecture in the Southern American Colonies"; Dell Upton, "Traditional Timber Framing," in *Material Culture of the Wooden Age*, ed. Brooke Hindle (Tarrytown: Sleepy Hollow Press, 1981), 35–96; Willie Graham, "Timber Framing," in *The Chesapeake House: Architectural Investigations by Colonial Williamsburg*, ed. Cary Carson and Carl R Lounsbury (Chapel Hill: University of North Carolina Press, 2013), 206–38.

program.¹⁸ As a result, many of the names cited throughout this study are familiar to those who are knowledgeable with the study of the Chesapeake Region. Lounsbury calls for a thorough examination of Charleston and the region beyond the iconic examples of the Miles Brewton House, Heyward Washington House, and Drayton Hall.¹⁹ This research hopes to contribute a small portion of this call to arms for the city and region that has such a rich but under studied architectural history.

Within this subset of scholarship, even less has been written about timber-framing systems. While seemingly an esoteric process, timber-framing systems deeply contributes to builder's ability to design and execute architectural spaces. In this review I first situate the Lowcountry within the framework of the English Atlantic world and then review the approaches scholars have taken in other regions to explore the advent of framing practices during the Early Modern period.

Thinking Atlanticly not Regionally—Trans-Atlantic Perspectives

Matthew Mulcahy argues that the Lowcountry should be subsumed within a framework of the "Greater British Caribbean"; a position that highlights the migration trajectory between the Barbados and the Carolina Colony.²⁰ But such an argument from an

¹⁸ Carl Lounsbury, "The Dynamics of Architectural Design in Eighteenth-Century Charleston and the Lowcountry," *Perspectives in Vernacular Architecture* 7 (1997): 60.

¹⁹ Lounsbury, "The Dynamics of Architectural Design in Eighteenth-Century Charleston and the Lowcountry," 61.

²⁰ Matthew Mulcahy, *Hubs of Empire: the Southeastern Lowcountry and British Caribbean*, (Johns Hopkins University Press, 2014).

architectural perspective relies too heavily on the idea of colony-specific knowledge being transmitted northward. It ignores the fact that the individuals, builders, and artisans came not just from Barbados but from Virginia, England, Bermuda-- from across the Atlantic world--to populate the Lowcountry.²¹ Still too, accepted scholarship finds little direct architectural connection between Barbados and Carolina. As Lounsbury has identified, fieldwork in the "Greater Caribbean", lacks a depth of recording and interpretation to understand any hypothesized architectural connections between Carolina and its colonial progeny.²² At the same time considering Carolina as an independent and sealed architectural landscape misses an opportunity to connect the region to the wider building cultures of the British Atlantic. Instead, a trial and error processes was at work which defined what would become the Lowcountry's vernacular landscape, and most especially for this study--framing systems. Some might call it "adaptation" and "innovation" others "improvisation", but together this process comprises the emergence of Lowcountry vernacular architecture. One must think Atlanticly about the ways that knowledge and information arrived in the region and the ways that that knowledge was adapted, transformed, and modified according to the particulars of place.

²¹ Alison Games, *Migration and the Origins of the English Atlantic World* (Harvard University Press, 1999); Herman, *Town House: Architecture and Material Life in the Early American City, 1780-1830*.

²² Lounsbury, "The Dynamics of Architectural Design in Eighteenth-Century Charleston and the Lowcountry," 61-62.

Muddy Boots—English Vernacular Forms

The study of vernacular architecture in England is influenced by the landscape approach of Hoskins, Pevsner, and their contemporaries.²³ Their emphasis has been less of a traditional academic study and instead they promote field recording of buildings. Both Pevsner and Hoskins and their grueling, borderline obsessive recording, set the stage for the maturation of vernacular architectural studies on the British Isles. They linked their definition of vernacular landscapes and buildings to the diverse regional traditions of England, which were closely tied to issues of the island's geologic formations and the influence of her across-the-channel neighbors.²⁴ While material, form, and finish were considered in these early sweeping studies, the analysis of timber-framing emerged as a robust specialty subset. R.W. Brunskill and his contemporaries, Eric Mercer, Richard Harris and others set out to define the nomenclature of the English framing tradition and the relationship among regional practices and the island as whole.²⁵ While this continuing work was still closely connected to empirical recording “out in the landscape”, Mercer’s work especially began to link particular forms and framing systems to socio-economic groupings.

²³ William George Hoskins, *The Making of the English Landscape* (London: Hodder and Stoughton, 1969); Nikolaus Pevsner, *A History of Building Types* (London: Thames and Hudson London, 1976).

²⁴ R W Brunskill, *Traditional Buildings of Britain* (London: Yale University Press, 1981).

²⁵ R W Brunskill, *Illustrated Handbook of Vernacular Architecture* (London: Faber & Faber, 1978); Richard Harris, *Discovering Timber-Framed Buildings* (London: Shire Classics, 2012); Eric Mercer, *English Vernacular Houses: A Study of Traditional Farmhouses and Cottages* (London: Her Majesty's Stationary Office for the Royal Commission on Historical Monuments England, 1975).

Empiricism and Precedent–Timber-Framing in New England

Early work in New England by researchers mirrored the approaches of their counterparts in the Old World. At the turn of the twentieth century, Isham and Brown sought to identify the unique framing technologies “native” to the region. Taking an empirical approach, they devised a theory of evolution of framing systems in the region that showed its development over time.²⁶ Building on this work, Abbot Lowell Cummings produced his seminal work, *The Framed Houses of Massachusetts Bay 1625–1725*, where he explored the evolution of framing systems in the region, their precedents from England, and the ways in which framing practices emerged as the New England vernacular over the seventeenth century.²⁷ Unlike his compatriots in points south in the Delaware Valley and the Chesapeake, Cummings and other New England scholars have the luxury of a bounty of seventeenth-century buildings although a number have recently been re-dated by dendrochronology to later time periods. Cummings approach isolated individual members and analyzed them in individual chapters.) isolated distinct features (e.g., chimney, summer beams, etc.) and then plotted their spatial distribution in the region, while at the same time explored their precedents from East Anglia in England (the primary departure point for many of the Massachusetts Bay colonists). Cummings enriched his analysis with detailed perspective

²⁶ Norman Morrison Isham and Albert Frederic Brown, *Early Connecticut Houses: An Historical and Architectural Study* (New Haven: Preston and Rounds Company, 1900); Norman Morrison Isham and Albert Frederic Brown, *Early Rhode Island Houses: An Historical and Architectural Study* (New Haven: Preston & Rounds, 1895).

²⁷ Abbott Lowell Cummings, *The Framed Houses of Massachusetts Bay, 1625-1725* (Cambridge, MA: Harvard Un, 1979).

drawings depicting individual joinery details. His conclusion argued for a linkage between Old Worlds and New. However, he argued that over the course of the seventeenth century, a distinctly “American” (read “New England”) form, style and finish of framed houses emerged in the region. This vernacular form, according to Cummings was eventually supplanted by the new “Renaissance vernacular”. At its core, however, there was little interpretation in Cumming’s analysis. This has less to do with the man and more to do with the context in which his scholarship was written. At this early stage in the development of the study of vernacular architecture, the focus of which was the empirically-grounded field observation, tracking spatial distributions of building styles, forms, and elements and how they changed over time; there was little explanatory lens through which these buildings were understood.

Evolution; Causality–The Chesapeake & Delaware Valley

The next generation and a half of scholar sought to provide a more robust interpretive framework of vernacular construction. Henry Glassie his scholarship of Virginia searched for the grammar with which Old Dominion builders erected their middling house, drawing heavily from anthropological notions of structuralism.²⁸ Dell Upton, took a similarly anthropological approach some fifteen years later in his analysis of Anglo-

²⁸ Henry Glassie, *Folk Housing in Middle Virginia: A Structural Analysis of Historic Artifacts* (Knoxville: Univ. of Tennessee Press, 1976); Fred Kniffen and Henry Glassie, “Building in Wood in the Eastern United States: A Time-Place Perspective,” *Geographical Review* 56, no. 1 (1966): 40–66.

American architecture, focusing primarily on the Chesapeake region.²⁹ Glassie and Upton continued the regional approach advocated by Cummings for the southern colonies, and similar work by Glassie in the mid-seventies followed by by Bernard Herman focused on the more complicated origins of the Delaware Valley.³⁰

The next half-generation of scholars began to probe deeper into the reasons for the emergence of vernacular forms. Explanatory narratives as to why architectural forms, systems, and styles take root are at the heart of the approaches of second and third generation of scholars of vernacular architecture. By far the largest thread of inquiry has been to understand the earliest architectural forms of the British colonies and then why those initial forms were displaced by new forms. Much of the focus in southern colonies, Atlantic islands, and Greater Caribbean research has been the uncovering, documentation, and interpretation of modest and impermanent architecture, with a great emphasis on earthfast construction.

Our understanding of the Chesapeake's vernacular landscape has greatly advanced since the advent of the Colonial Williamsburg sustained research program in the region. Paul Buchannan's early treatment of eighteenth-century framing took place before the widespread archaeological discoveries of earthfast architecture via the archaeological record. Buchannan argues that the early framing traditions of the regions

²⁹ Upton, "Traditional Timber Framing."

³⁰ Henry Glassie, "Eighteenth-Century Cultural Process in Delaware Valley Folk Building," *Winterthur Portfolio* 7 (1972): 29–57; Bernard L Herman, *Architecture and Rural Life in Central Delaware, 1700-1900* (Knoxville: University of Tennessee Press, 1989).

were brought over through the “memories” of early colonists. Buchanan’s treatment was descriptive, identifying the various elements of framing but not probing the explanatory measures which brought them to Williamsburg and her sister towns in the region. He walks readers through the typical construction sequence of frame houses and divides his discussion between “simple brace” and “wide span” framing. Buchanan cast a wide net for his successors to dig deeper not only into the details of framing in the region but to probe the explanatory and causal issues of architectural changes during the seventeenth and eighteenth centuries.³¹

The early 1980s brought fresh efforts to understand the timber-framing traditions of the region, most notably the work of Cary Carson and his collaborators set into focus the earthfast tradition of framing present in the region over the seventeenth century and its impact on eighteenth-century architecture. Bringing together archaeological evidence from two dozen sites, Carson et. al posited this impermanent architecture was the result of uncertain demographic conditions, the volatile tobacco monoculture, and a lack of attachment to “place”—the earliest colonists did not believe they would be permanent residents in the Virginia colony, instead they sought only a quick fortune before their return to England.³²

³¹ Travis C McDonald, “The Fundamental Practice of Fieldwork at Colonial Williamsburg,” *Perspectives in Vernacular Architecture* 13, no. 2 (2006): 36–53.

³² Carson et al., “Impermanent Architecture in the Southern American Colonies.”

Carson's and his co-authors in "Impermanent Architecture" did not have the luxury of over a quarter-decade more archaeological and architectural research in the region, and as such their analysis deals with post-in-ground architecture on a wholesale basis. Later scholars have been able to leverage results from decades of archaeological excavations in the region. The result is a quantitative approach to the study of earthfast timber-framing in the Chesapeake, which provides a higher level of interpretive resolution than earlier approaches. Two seminal works written in response to the quad-centennial of the founding of Jamestown emphasize and adaptation and innovation model to explain the vernacular model that emerged in seventeenth-century Virginia--the first, "New World, Real World: Improvising English Culture in Seventeenth-Century Virginia" by Cary Carson and his colleagues, and the second "Adaptation and Innovation: Archaeological and Architectural Perspectives on the Seventeenth-Century Chesapeake", by Willie Graham, Carter L. Hudgins, Carl R. Lounsbury, Frasier D. Neiman, and James P. Whittenburg. Both articles bring together data from over 450 archaeological sites and standing buildings, to "crunch the numbers" on the Chesapeake's seventeenth-century timber-framing tradition, and employ future discounting and costly signaling models as explanatory methods for their interpretive narrative.³³ The root of their argument lies in the notions of "adaptation and innovation"--that is that colonists brought with this a particular set of ideas, materials,

³³ Willie Graham et al., "Adaptation and Innovation: Archaeological and Architectural Perspectives on the Seventeenth-Century Chesapeake," *The William and Mary Quarterly* 64, no. 3 (2007): 451–522.

and plans for their new colony, upon meeting with the pragmatic conditions of the new world this material and ideological template was re-worked according to place. From this re-working, newer, more efficient and suitable ideas emerged for Chesapeake society. The development of the region's dominant seventeenth-century architectural form—the Virginia House—is one example. Colonists arriving at James Fort immediately began erecting earthfast building using mud-encased and wattle and daub framing technology, the same technology many of the colonists left from their English counties from Dorset to Lincolnshire. Together with arguments related to foodways and status, these scholar chart both a quantitative and qualitative understanding of the development of seventeenth-century Chesapeake society. Willie Graham's recent chapter on framing technology in the *Chesapeake House* carries the evolution of framing into the eighteenth- and nineteenth-century Chesapeake, showing how those early innovations became embedded in cultural building practices.³⁴

The Unknown and the Developing—The Greater Caribbean

The study of vernacular forms in the "Greater Caribbean" and Atlantic islands is still in its infancy, and has primarily relied on scholars from North American and British Universities and Research Institutions.³⁵ Despite its seemingly backwater position

³⁴ Graham, "Timber Framing."

³⁵ In this context, the 'Greater Caribbean consists of those colonies falling within the Caribbean basin as well as those southern colonies of North America (e.g., Carolina) as well as the Atlantic island colony of Bermuda.

within the broader frame of Early Modern architectural history, the study of the Greater Caribbean is vital to our understanding of the wider socio-cultural (and economic) lifeways of the British colonial period. From the northernmost outpost of Bermuda, and its small capital of St. George's, to its larger holdings in Jamaica and Kingston—the largest and richest port in the region in the eighteenth and early nineteenth centuries—to the smaller islands of St. Kitts and Nevis, ending in the southern colony of Barbados and its capital of Bridgetown, seat of an early sugar empire, the study of the Greater Caribbean provides insight into the economic and social engines of the Atlantic world's colonial period.

In Bermuda, Edward Chappell has successively argued that the island's transition from the predominantly earthfast architecture of the seventeenth century, was a product of both socio-economic and environmentally dictated conditions.³⁶ Over eighty years of joint-stock company rule left little for many settlers, who were merely leasing land to invest in substantial architecture. Still, too, the island's abundance of endemic cedar meant that the sturdy, sweet-smelling wood was bountiful and easily driven into the shallow limestone bedrock for sturdy framed edifices. Little of this earthfast landscape remains. Four hundred years of sustained occupation on the twelve-square-mile island have scraped clean the evidence of this once abundant architectural form. Over thirty-five years of archaeological excavation on the island have yielded evidence

³⁶ Edward A Chappell, "The Bermuda House," *Post-Medieval Archaeology* 45, no. 1 (2011): 93–143.

for only one earthfast structure—one of the earliest on the island—Governor Moore’s Government House, in the Car Park of the Bank of Bermuda, in St. George’s. While only a single post hole was identified that could be safely dated to the seventeenth century, this site provides a tiny glimpse into an architectural form now wiped clean.³⁷

Once the Company was disbanded and the Crown officially took control of the tiny Atlantic outpost, Bermudians, who now could now own their shares, had incentive to build in the island’s native limestone but continue to leverage English framing tradition in the emerging vernacular form.³⁸ This transition from timber-framed to stone was aided by two other processes, first generation knowledge of hurricanes, and two the prioritization of cedar trees from houses to sloops, as the island’s economy grew through now legal and illegal inter-colonial trade.

As the economy of England’s southernmost Atlantic colony grew under the auspices of the Sugar Revolution, the newly moved capital at Bridgetown quickly morphed into a maze of stone town houses and warehouses where wealthy planters and merchants launched their sugar crops to points afar in the Atlantic world and beyond.³⁹ Outside of the major towns, plantation seats such as St. Nicholas Abby and Drax Hall were some of the earliest buildings to adopt brick edifices in a “Jacobean

³⁷ Dan Hicks et al., “An Archaeological Evaluation at the Bank of Bermuda Car Park” (Bristol, 2002).

³⁸ Edward A Chappell, “Timber Building in the Mid-Atlantic: Bermuda and Its Relatives,” *In Preparation*, n.d.

³⁹ Frederick H. Smith and Karl Watson, “Urbanity, Sociability, and Commercial Exchange in the Barbados Sugar Trade: A Comparative Colonial Archaeological Perspective on Bridgetown, Barbados in the Seventeenth Century,” *International Journal of Historical Archaeology* 13, no. 1 (2009): 63–79.

tradition.”⁴⁰ Here, like in Bermuda, economic forces—the burgeoning transatlantic sugar trade—resulted in an investment by Barbadians in architecture both for functional permanence and flagrant self-aggrandizement. More modest and lower-income residences in Bridgetown have been studied by Robert Potter, who argues that their form and style is drawn from a fusion of English and West African influences. He more broadly locates, like in Bermuda, the emergence of more permanent architectural forms as a result of the land-tenure system as the colony grew more wealthy throughout the seventeenth into the eighteenth centuries.⁴¹

Roger Leech found a similar pattern present in the remainder of the Caribbean pattern of impermanent to more permanent structures. In Charlestown Nevis, Leech has successfully demonstrated the evolution of architectural forms where a corner posts of an earlier structure were encased in a later stone wall. This movement from earthfast to stone architecture likely relates to environmental pressures, (e.g., hurricanes) as well as the maturation of Charlestown as an urban center in Nevis. Leech buttresses his evidence for such a sequence by citing similar examples from the Chesapeake at Flowerdew Hundred in Virginia as well as St. Mary’s City and London Town in

⁴⁰ Roger H Leech, “Impermanent Architecture in the English Colonies of the Eastern Caribbean: New Contexts for Innovation in the Early Modern Atlantic World,” *Perspectives in Vernacular Architecture*, 2005, 1.

⁴¹ Robert B Potter, “Urban Housing in Barbados , West Indies,” *The Geographic Journal* 155, no. 1 (2008): 81–93.

Maryland.⁴² In Jamaica, the English drew on the architectural precedents of the Spanish after their expulsion from the island, building civic and private edifices out of both imported and locally quarried stone; timber-framing was not present in the development of the island's gentele vernacular structures but were pervasive in buildings of the middling sort and enslaved Africans and Free Blacks. While not much has been researched on the framing choices of Jamaicans, it appears from initial accounts that their framing systems are a hybridized form of English framing, one that matches traditional forms with locally-situated finishes.⁴³

The Known but still Developing—Return to the Lowcountry

In Charleston Pamela Kendrick has eloquently explored the emergence of the Truss system in an urban context as a local solution to the larger building desires of Lowcountry Elite. Here she plots the spatial and temporal distribution of King and Queen Post Truss roof systems and explores the reasons they were employed in the city's built environment.⁴⁴ Still too Carl Lounsbury, Bernard Herman, and Louis Nelson have engaged with framing systems as one part of the broader narrative of vernacular

⁴² Leech, "Impermanent Architecture in the English Colonies of the Eastern Caribbean: New Contexts for Innovation in the Early Modern Atlantic World"; James Deetz, *Flowerdew Hundred: The Archaeology of a Virginia Plantation, 1619-1864* (University of Virginia Press, 1995).

⁴³ From my own fieldwork in Jamaica it seems that framing components had what would be considered a higher style of finish. This likely is a direct result from the wealth of the colony during the eighteenth and nineteenth centuries. See also, Louis P Nelson, "The Architectures of Black Identity," *Winterthur Portfolio* 45, no. 2/3 (2011): 177–94.

⁴⁴ Pamela Marotta Kendrick, "The Charleston Trussed Roof : A Study of the Development and Implementation of a Structural Solution from 1740-1820" 2013.

architecture of the region.⁴⁵ On the scale of individual houses, Graham along with colleagues such as Orlando Ridout and Carl Lounsbury have completed historic structure reports at the Nathaniel Russell House and the Aiken Rhett House.⁴⁶

The evolutionary framework of Graham and his colleagues in the Chesapeake guides this work. Through a diachronic and spatial approach to the study of timber-framing in the early modern Lowcountry this research hopes to replicate the depth of knowledge constructed by the region's Chesapeake colleagues.

⁴⁵ Nelson, *The Beauty of Holiness Anglicanism and Architecture in Colonial South Carolina*; Herman, *Town House: Architecture and Material Life in the Early American City, 1780-1830*; Lounsbury, "The Dynamics of Architectural Design in Eighteenth-Century Charleston and the Lowcountry."

⁴⁶ Willie Graham and Orlando Ridout V, "An Architectural and Historical Analysis of the Nathaniel Russell House, Charleston, South Carolina" (Charleston, 1996); Willie Graham, Carl R Lounsbury, and Orlando Ridout V, "Architectural Investigations of the Aiken-Rhett House" (Charleston, 2003).

CHAPTER THREE: FRAMING IS IN THE DETAILS--METHODOLOGY

Framing is in the details. Through a detailed framing schedule, both a qualitative and quantitative assessment of the development of framing in Charleston and the Lowcountry can be analyzed. My consideration of the Lowcountry's framing tradition takes a thematic and scalar organization approach. Thematic in the sense that the use of a building is linked to scale. As such the data are first examined thematically (qualitatively) in the body chapters of the study and then quantitatively in the ultimate chapter before taking a brief broader comparative perspective. The methodology presented below outlines the creation of the study dataset, the building dataset itself, methods which were used to collect the data, and the process of data compilation.

Creating the Dataset

The dataset for this project consists of standing structures drawn from around Charleston and the Lowcountry region. It also incorporates archaeological data from Charles Towne Landing as well as pictographic representations of framing from early eighteenth-century Georgia. I drew from several sources to both identify potential sites as well as confirm their framing integrity. First, the National Register of Historic Sites yielded fifty potential sites. Second, previous compiled architecture projects such as Poston's *Buildings of Charleston*, and Pam Kendrick's study of the Charleston urban truss

system provide important foundational perspectives on possible building candidates.⁴⁷

Third, close consultation with my committee, Carter L. Hudgins, Richard Marks, Willie Graham, and Craig Bennett, provided sounding boards for potential buildings and whether access could be granted during the study period.

The Dataset

While a host of structures and sites were identified as potential candidates, a select few were visited and recorded. The chosen sites related directly to the overarching evolutionary narrative presented throughout the study and are organized within each chapter's theme.

Table 1: Project Sites

Churches	Domestic Dwellings	Enslaved Dwellings
Prince George Winyah	Thomas Rose House	Middleburg Plantation
Pompion Hill Chapel	Hampton Plantation	Hopsewee Plantation
St. James Santee/Brick Church at Wambaw	Miles Brewton House	McLeod Plantation
St. Stephen's	Heyward Washington House	Silver Hill Plantation
St. Thomas/St. Denis	Nathaniel Russell House	
	Aiken Rhett House	

⁴⁷ Jonathan H Poston, *The Buildings of Charleston: A Guide to the City's Architecture* (Columbia: University of South Carolina Press Columbia, 1997); Pamela Marotta Kendrick, "The Charleston Trussed Roof : A Study of the Development and Implementation of a Structural Solution from 1740-1820" 2013.

Thinking about Terms

Much of my work will consider the details of framing systems. The individual components, the joinery, and the ways these individual components worked together to form an integrated system. In this study, individual components must be defined and recorded in uniform ways in order to ensure uniformity across the dataset. An agreement of terminology in this instance is essential. While there are dozens of volumes defining the elements of English timber framing, in this study I will draw on the definitions by Carl Lounsbury in his *Illustrated Glossary of Early Southern Architecture and Landscape*, as it is most closely linked to the context of Lowcountry for its frame of reference. Components such as common rafters, principal rafters, King Post Trusses, joggles, and purlins are all identified based on Lounsbury's terms.⁴⁸

Collecting Data

Framing data was collected in several ways. First, traditional field notes via visual inspection were made at each of the site properties. Second, photographs of roof systems were also taken using a Nikon D3300 camera. The third method of recording consisted of traditional 2D measured drawings with dimensions pulled from hand tape measurements (see Appendix 1 for a set of partial line drawings). Finally, a select

⁴⁸ Carl Lounsbury, *An Illustrated Glossary of Early Southern Architecture and Landscape*, (Charlottesville: University of Virginia Press, 1999).

number of roof systems were also recording using a Faro Focus X330 laser scanner.

Collected 3D point data was processed using Faro Scene software, version 5.5. Point clouds were merged and then exported as 3D point clouds to AutoDesk Recap. Select perspective views of the 3D data will also be presented in the body of the study. The 3D data will be stored locally on the Warren Lasch Conservation Center servers.

Sample Framing Schedule

The framing schedule is the recording mechanism for raw data in this study. It consists of a seven-part table recording framing information:

Table 2: Sample framing schedule.

Member	Dimensions	Species	Preparation	Joinery	Spacing	Notes

In addition to the framing schedule for each building, several photographs are provided in text. Additionally, when generated, section drawings are also provided.

Future Database

The raw data generated from this study will be temporarily stored on the Warren Lasch Conservation servers. Storing this data in the most archiveable format is a prelude to a

larger, more comprehensive database on the vernacular architecture of the Lowcountry similar to the database created by the Historic American Buildings Survey (HABS), to allow for online access to the site data for the region. Such a step will allow for the dissemination of architectural data to both scholars and the public at large. It is hoped that this database will be supported by the region's major university and research institutions and add to this database as the documentation of the region continues.

CHAPTER FOUR: FRAMING GOD IN THE LOWCOUNTRY

The Anglican churches of the Carolina Lowcountry are one of the region's architectural and socio-cultural character-defining features. Much like their neighboring colonial enclaves in the Chesapeake, Delaware Valley, and New England, these structures index the unique circumstances of Anglican religiosity during the Colonial and Early Republic periods. But more acutely, their construction methods are a window into the vernacular design and building processes of the region and how it changed over time. While much has been written about their liturgical settings within the interpretation framework of the region's socio-religious order, there has yet to be a consideration of the Anglican framing tradition in the Lowcountry.⁴⁹ Of particular interest to this discussion is the relationship between building size and roof framing system (e.g., roof types) as well as the details of framing—the connections, the member preparation—and how these details were unique to town and country contexts and how they changed over time. Both of these components of building are directly related to the meaning of the structures as a part of building culture and a manifestation of the intricate relationship between the corporal and the sacred. In this discussion, five of the rural Anglican parish churches and chapel of ease are discussed drawn from the author's field work as well as work by previous scholars. Together these comprise a representative dataset of the region's surviving rural Anglican edifices.

⁴⁹ Nelson, *The Beauty of Holiness Anglicanism and Architecture in Colonial South Carolina*; Lounsbury, "The Dynamics of Architectural Design in Eighteenth-Century Charleston and the Lowcountry."

One should caution that this dataset is geographically skewed towards the central portion of the Lowcountry between Charleston and Georgetown. The southern third of the Lowcountry between Charleston and Beaufort is under-represented due to both cultural and natural activity. St. Andrew's parish church does not have an accessible roof. Pon Pon Chapel, in St. Bartholomew's Parish, was created as a part of the second wave parish establishment in 1706, with a wooden structure being erected on the site as early as 1714. The timber-framed structure burned in 1754 and was quickly replaced, that building then burned again, for reasons unknown. By 1819 a third iteration of construction was completed, and that building burned by 1834, again for reasons unknown. The east and west walls of this early nineteenth-century structure survive today. While the forces impacting Pon Pon Chapel are unknown, human intervention and downright blasphemy befell Prince William Parish Church (also known today as Old Sheldon Church). Dating to 1754, it was burned by occupying British forces during the American Revolution, it was rebuilt, was burnt again by Sherman's union troops on their march to the Savannah; St Helena's Chapel of Ease was also burned by British soldiers during the American Revolution.⁵⁰

While this dataset is perhaps geographically biased to the middle of the Carolina Lowcountry, it does present a diversity of size and roof forms. In the parishes, the

⁵⁰ One building that still needs to be examined is St Helena's Parish church which according to church histories dates to 1725. In all likelihood however, the building dates to the middle of the eighteenth-century. This side-aisle plan would be a useful comparative context for the Charleston churches as well as Prince George Winyah in Georgetown.

largest structure—Prince George Winyah—spans some sixty-two feet across its two aisles from north to south. In between, the middle of the dataset consists of spaces between forty and fifty feet in length, and the smallest Chapel, St. Thomas/St. Denis. Moreover, the five buildings also present a diversity of roof forms and vastly different framing systems both in a terms of major structural elements as well as the details of member preparation. The wider question is whether these choices were a product of building size, or whether they are indicative of a wider set of choices made by buildings and commissioners of buildings.

Anglican Church Act–1706

For roughly the first twenty-six years of settlement, the Carolina colony was a “religiously tolerant” colony founded and administered by the Lord’s Proprietors. All were welcome in the southern colony, save Catholics. By 1706, however, the fervor for Anglican religious primacy finally came to fruition. The Carolina Church Act of 1706 made the Anglican faith the official religion of the colony. While others continued to worship freely (save Catholics), the 1706 Church Act legitimized the fusion of Church and State within the colony and set about a flurry of church construction throughout the regions as the act established the parish system.⁵¹

⁵¹ Nelson, *The Beauty of Holiness Anglicanism and Architecture in Colonial South Carolina*, 61–62.

Several waves of parishes were established throughout the eighteenth century, and came to fill the landscape of the Lowcountry. While this quickly took place directly after the Church Act with parish churches established along the coastline, the current complement of Anglican churches all date from the middle of the eighteenth century. A host of hurricanes, fires, and other divine and human-related cataclysms (such as those briefly described above in the southern Lowcountry), have all but erased the earliest Lowcountry architectural forms. Instead, it seems that by mid-century the colony--as a direct result of its prosperity from rice cultivation--began major architectural rebuilding in Charleston proper as well as in its plantation environs. Civic and religious structures, such as the parish churches and chapels of ease, were aspirational monuments to the permanency and primacy of the Crown and the Anglican religion. Brick, endemic to the English colonies and stone to the Greater Caribbean symbolized wealth and permanency in the uncertain New World. The investment in brick edifices in the Chesapeake and the Carolinas was a signal and index of the maturation of the colony.⁵² As early as 1665 in Virginia at Arthur Allen's estate (Bacon's Castle) and 1742 at Drayton Hall in the Lowcountry, brick was a marker of wealth and status in the extremes of the western Atlantic. For the middle of the eighteenth century in the Lowcountry, brick was the

⁵² Julia A King and Edward E Chaney, "Lord Baltimore and the Meaning of Brick Architecture in Seventeenth-Century Maryland 1600-1800," in *The Archaeology of the British*, ed. Geoff Egan and Ronald L. Michael (Oxford: Oxbow Book, 1999), 51-60.

material of choice for holy builders. But the articulation of those brick edifices represents a diversity of forms and figures.

This chapter considers the framing traditions of eighteenth- and nineteenth-century Anglican edifices of the rural parish churches and chapels of ease. It probes the building and material choices of those builders and attempts to link those choices to the wider interpretive narrative of Anglicanism in the early modern Carolina colony. To do this, the discussion provides a brief history of each of the five buildings followed by a detailed discussion of the framing systems. The concluding discussion section draws out the wider patterns of the data set and points to the broader rhythms and meaning of the framing choices for this type of building. This dataset creates a strong foundation on which the wider region (and perhaps the later structures of the midlands and upstate) can be integrated into a future state-wide interpretive narrative.

Prince George Winyah, Georgetown

Georgetown is the Lowcountry's third oldest urban landscape, established in 1721.

Prince George Winyah Parish was formed soon after the town. But as the population rapidly expanded, the parish was split into two, with Prince Frederick parish established to the north. At the time of the split, the existing parish church fell within the new parish, and Winyah was in need of a new Anglican edifice. Records indicate that bricks began being collected as early as 1740, however, construction did not begin until 1747,

and the first service was held three years later.⁵³ Nonetheless, the building is still one of the earliest surviving Anglican churches in the region, despite the fact that the church tower has been rebuilt twice as a result of a series of fires. The rectangular, longitudinal plan consists of a wide nave aisle, flanked by side aisles demarcated by a row of columns (which support queen post trusses above). Whether the side-aisle plan is original, or was a later addition is unknown. There is some indication of this as the queen post trusses on the lower ends of the cove ceiling are prepared in a slightly different manner than the king posts above (see framing discussion below).



Figure 3: Prince George Winyah southern facade (Image: B. Fortenberry)

⁵³ Nelson, *Beauty of Holiness*, 141-143.

Winyah, unlike many of the parish churches and chapels of ease, employs a more traditional longitudinal plan, which situates the altar at the eastern end with the pulpit sitting just outside the confines of the chancel⁵⁴. Much of this more traditional plan is a product of the fact that the building needed to serve the rapidly-growing Georgetown community. This might also have to do with the early construction of the building itself. The longitudinal plan might have been the preferred internal arrangement due to the fact that, at least in the Lowcountry, the auditory church plan did not begin to make its way from England until the 1760s. Nonetheless, the longitudinal plan, with its ability to pack a large number of people within the liturgical space, seems to be the preferred internal arrangement for city churches throughout the southern colonies with similar designs for St Michael's and St. Philip's in Charleston, St. Helena's in Beaufort, and Bruton Parish Church in the Virginia Capital of Williamsburg.

Beyond the nave, the existing tower was added in the first quarter of the nineteenth-century, sometime around 1824, and the projecting eastern chancel was added around the same time. The roof is framed by a curvilinear parapet gables on the eastern and western sides which hide a gable roof with slate cladding. The original material was likely wood shingles.

⁵⁴ See George William Outram Addleshaw and Frederick Etchells, *The Architectural Setting of Anglican Worship* (Faber & Faber, 1956) for a discussion of the early modern Anglican church plans.

Truss System

Prince George Winyah employs a king and queen post system over the treble-aisled interior. As Louis Nelson notes, the truss system at Prince George Winyah was similar to those described by Francis Prince in the *British Carpenter*.⁵⁵ Here, builders used a king and queen post system that leveraged the interior columns as supports for the Queen posts that rise to meet the principal rafters. This intersection is well below the level of the tie beams which support the king post. For this structure, this open truss system was an easy way to provide structural support of the fifty-one foot span over the nave and the side-aisles. With this system in place, builders could employ a plaster coved ceiling for the nave interior. Nelson notes that a similar system was originally employed at St. Michael's in Charleston, however there a closed truss system was employed where queen post rest principally on the tie beam and the king post is supported by a second cord with a metal stirrup.⁵⁶

The king posts are 8" wide and 6-1/2" deep, they are planed on the eastern and western faces and pit sawn on the northern and southern faces. The king posts have struts which are tenoned and pegged into the primary post and are centered on the joggles. The posts themselves are tenoned and pegged into the cords with commonly-seen wrought iron straps that have wrought-iron spikes in both the post and cord faces that measure 2-3/4" wide and 5/8" thick. The king posts rise to a diamond head cap

⁵⁵ Nelson, *The Beauty of Holiness*, 73–74.

⁵⁶ Nelson, *The Beauty of Holiness*, 74-75.

where the principal rafters are tenoned and single pegged into place. To add further tension to the truss assembly, wrought-iron straps wrap over the principals fastened to the center of the King Post face. There are four King Posts assemblies in the system, and they are spaced between 14'-11" and 15'-11".



Figure 4: King post with dropped ridge board at Prince George Winyah (Image: B. Fortenberry)

To add further tension to the king posts, 6" tall and 3" wide owl boards (or dropped ridge board) traverse the intermediate bays, a feature only also seen at the Blake Tenements in Charleston proper. They are tenoned and pegged into the king posts. Of particular note is that the King Posts are marked by a tally and flag carpentry

system present at both Pompion Hill and St. Stephen's Parish church (see more below).

The principal rafters taper from 7-1/4" wide to 6-3/4" at the ridge. They are hewn on the bottom faces and planed on the vertical faces. The common rafters measure between 2-3/4" and 3" wide and 4-1/4" tall, they are hewn on the bottom faces and pit sawn on vertical faces, tenoned and pegged at the ridge. The commons are generally spaced at 1'-4" and principal rafters to common rafters at 1'-11" to 2'-1".



Figure 5: Detail of dropped ridge board (Image: B. Fortenberry)

The upper tie beams are half dovetailed-lapped into the common rafters, while the cords tenon and single peg into the principal rafters. They measure 9-3/4" tall and 6-1/2" wide. The purlins are tenoned and pegged into the principal rafters, with the commons riding up behind; they are 5-1/4" tall and 3-1/4" wide. Unlike elsewhere the purlins are not staggered and are so slight as to provide little to no support, as is evident by the addition of standing supporting posts which are butted and nailed to the purlins, the use of cut nails with machine heads indicate a nineteenth-century reinforcement date.



Figure 6: Purlin detail, Prince George Winyah (Image: B. Fortenberry)

Below the cove, the set of queen posts are connected to the top cords by a diagonal strut which is tenoned and double pegged at each end. These measure 8" tall and 6-1/2" wide. The queen posts are relatively square, measuring 6-1/2" by 6-1/2". They tenon to a beam that sits directly on top of the side aisle columns in the nave. A lower set of tie beams project from the queen posts to the wall plate stretching across the side aisle to a distance of 12'-5", tenoning into the wall plates with a double peg, as do the principal rafters. The plate measures 7" tall and 5" wide, and is hewn on the top face and pit sawn on the northern and southern faces. A secondary strut rises from the bottom set of cords meeting the principal rafters in a tenoned and pegged connection. The commons rafters are carried on a small false plate beyond the wall plate, measurements of which were not accessible. The wall plates are set 9" inward from the exterior of the wall, and the rafters extend some 10" below the wall plate.

Three interesting features of this system stand out. The first is the use of dropped ridge beams between the king posts. These owl boards perform the function of creating tension between the king posts. Another character defining feature of the truss system is the downward strapping on the head of the king post. The presence of this strapping was likely the result of a stopgap for hogging that would push the principal rafters outward from the roof system. Third is the use of a continuous set of purlins along the king post elevation. Clear evidence of sagging along this line of support indicates that these were too light to support the sheathing and roof cladding, likely slate after the initial wood shingles. Prince George Winyah's king and queen post system

provides the solution to the side-aisle plan in the Lowcountry (See Appendix 1 for a truss section).



Figure 7: Carpentry mark details, Prince George Winyah (Image: B. Fortenberry)

Table 3: Prince George Winyah Framing Schedule

Member	Dimensions	Species	Preparation	Joinery	Spacing	Notes
King Post	8" x 6-1/2"	Pine	Planed and Pit Sawn	Tenoned and Pegged	14'-11"	Wrought-iron strapping at both diamond head and at the connection to tie beams
Queen Post	8" x 6-1/2"	Pine	Planed and Pit Sawn	Tenoned and Pegged		
Principal Rafters	7-1/4"	Pine	Hewn and Pit Sawn			Taper to 6-3/4" at the ridge
Common Rafters	2-3/4" x 3"	Pine	Hewn and Planed	Tenoned and Pegged		
Purlins	5-1/4" x 3-1/4"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		
Chords	2-3/4" x 5/8"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		
Tie Beams	9-3/4" x 6-1/2"	Pine	Hewn and Pit Sawn	Dovetail-lapped and Pegged		
Dropped Ridge Board	6" x 3"	Pine	Planed and Pit Sawn	Tenoned and Pegged		
Wall Plate	7" x 5"	Pine	Hewn and Pit Sawn			

St. James Santee, Wambaw Creek

The Brick Church at Wambaw, or more commonly known as St. James Santee, sits just south of Hampton Plantation near the banks of the South Santee Delta on Wambaw Creek. St. James Santee was one of the original Anglican parishes established by the Church Act of 1706, ironically, its earliest congregations were Huguenots immigrants, known as the ‘French Santee’.⁵⁷ Just twenty years after the continental believers were granted their Huguenot parish, they petitioned to be converted to an Anglican parish. While the site has served as the home to the parish churches since its inception in 1706, the current structure is the fifth Anglican edifice on the site and dates to 1768—another example of the mid-eighteenth century rebuilding of the sacred landscape of the Lowcountry.

Like many of its contemporary colonial Anglican churches, the 1768 incarnation of St. James Santee features a rectangular auditory plan, one which was designed to focus parishoner’s attention toward the pulpit, the minister, and toward the word of God. In contrast to the Catholic focus on the altar, this was deeply linked to the Protestant priority of the Word and Scripture over the Rituals and Sacraments so closely associated with the Catholic faith. St James Santee’s liturgical arrangement, however striking, puts these priorities into contrast. While habitually the east end of church interiors is reserved for the altar (the most sacred of spaces within the church), here

⁵⁷ For a discussion of Huguenots in South Carolina and Orange Quarter see Arthur Henry Hirsch, *The Huguenots of Colonial South Carolina* (Genealogical Publishing Com, 2009).

Santeeans placed the pulpit in the eastern extreme of the building, centering the altar at the junction of the east-west aisle and the southern cross-aisle. The significance of this arrangement is unclear. Perhaps this liturgical setting was a nod to the importance of the eastern end as a sacred space within Christian doctrine and as such they placed the pulpit here and set the altar in the central space at the crossing entrance into the building on a raised platform. The building has a hipped roof with projecting porticos to the northern and southern façades, which were added at later dates.

Truss System

St. James Santee is framed by a king post system with the wrought-iron stirrups common on similar systems. The added porticos on the north and south are comprised of simple common rafter systems with heavy wall plates on the exterior spans.⁵⁸ The king posts are more slight than their counterparts at Pompion Hill Chapel and St Stephen's (see below) in that they are roughly worked: hewn on the eastern and western faces and pit sawn on the northern and southern faces. Their smaller size is likely a direct product of the hipped roof of the space which easily spreads the weight of the roof to the exterior walls rather than on the internal truss system as is the case with the jerkin head and gambrel roof form. St James Santee's roof system consists of three

⁵⁸ In the summer of 2015, Tommy Graham, Carter Hudgins, Craig Bennett and I had the opportunity to examine the roof system of the eighteenth-century chapel as a prelude to the replacement of the asbestos shingle roof with a new cooper roof. There is no ground roof access and so the only means of entry was through the exterior cladding and roof board. Once sealed by the new cooper sheathing, the roof system will not be accessible for generations to come.

short and stout king posts, much more slight in size than its fellow truss systems in the Anglican Parish Churches and Chapels of Ease of the Lowcountry. In a similar fashion to what we have seen in other king posts systems, the base of Santee's posts are strapped using a wrought-iron stirrup to the tie beam. At their base, the king posts are 1'-2" wide and 5-1/2" deep. They measure about 8'-2" high from tie beam to the ridge. They culminate in a diamond head into which the principal rafters are tenoned and single pegged. On the central and eastern king posts, the eastern and western faces are planed and the northern and southern faces are hewn. The western king post, however, has a slightly altered construction. Its faces are hewn on all four sides and it appears that the eastern face had to be cut back some four inches to allow for the stirrup to be installed. It reads more like an experimental king post. The radiating struts are 7" tall and 4-1/4" deep and are pit sawn on the eastern and western faces while hewn on the top and bottom faces. They run for some 55" inches from king post joggle to principal rafter and are tenoned and pegged in both connections. The king posts sit on tie beams which measure 6-1/4" tall and 4" deep, the King Posts are tenoned and double pegged. The tie beams are pit sawn on the eastern and western faces, and hewn on the top and bottom faces. Interestingly the tie beams are strapped using similar wrought-iron stirrups to the principal rafters.



Figure 8: St. James Santee southern facade (Image: B. Fortenberry)



Figure 9: King post truss, St. James Santee (Image: B. Fortenberry)

The principal rafters are hewn on the vertical faces, pit sawn on the horizontal faces and measure 9-1/2" tall and 4" wide. From the single tenons at the cap of the king posts, they run about ten feet to the principal plate around the cove ceiling (this measurement was not accessible). Common rafters are tenoned and pegged at the ridge. They measure 4-1/2" tall and 3" wide. They are pit sawn on the vertical and hewn on the horizontal faces. They, too, extend some ten feet below the ridge to a slight false plate above the principal plates. The common rafters ride lightly behind the purlins which are through tenoned and staggered to the principal rafters. The purlins measure 7" wide and 4" tall and are hewn on the top surfaces, while pit sawn on the rising surfaces. These purlins sit much lower in the frame assembly relative to other churches and are positioned as such due to the low sloping nature of the hipped roof. The braces are 3" wide, 3-1/3" deep and are pit sawn. They tenon and peg to the principal rafters. Here the hip assembly consists of four delicate dragon beams which are hewn on their top and bottom faces while pit sawn on the vertical faces; they are 5" wide and 4-1/2" tall. The surrounding joists are butted and nailed in place and are 9" and are 2-1/2" wide. The hip rafters are of similar size to the commons and are hewn on the bottom and top faces while pit sawn on the vertical faces, they are tenoned and pegged to the dragon beams and like the other rafters dive below the top surface of the cove. They are also tenoned and pegged at the ridge, with the jack rafters butted and nailed to the hips.

In terms of finish, there were two interesting features present in this system. On the western-most king post stirrup is evidence of green finish, most likely a lead-based paint from initial inspection. A sample was taken but has not been analyzed but it appears to be nineteenth and twentieth century in origin. An earlier finish is present on the jack rafters between the nave roof and the abutting porticos—it appears that those timbers were whitewashed on both the longitudinal faces. Whether this is a product of timber re-use or is not the whitewash is an intriguing piece of evidence. It points to some level of finish within the confines of St James Santee’s eighteenth-century roof system.

St. James Santee is the only hipped roof in this dataset. The slight king posts provided stability for the low-sloped pitch, some thirty degrees. A similar strategy was employed by domestic residences during the same period in Charleston proper, where the low-sloped pitches of late Georgian and early Federal houses dictated the use of the king posts where heavy principal rafters could not support the flatter pitch.



Figure 10: Detail of king post diamond head, St. James Santee (Image: B. Fortenberry)



Figure 11: Detail of strut, principal rafter connection, St. James Santee (Image: B. Fortenberry)

Table 4: St. James Santee Framing Schedule

Member	Dimensions	Species	Preparation	Joinery	Spacing	Notes
King Post	1'-2" x 5-1/2"	Pine	Planed and Hewn	Tenoned and Pegged		8'-2" Tall
King Post Struts	7" x 4-1/4"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		55" from joggle to principal rafter
Principal Rafters	9-1/2" x 4"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		
Common Rafters	4-1/2" x 3"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		
Purlins	7" x 4"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		
Braces	3" x 3-1/2"	Pine	Pit Sawn	Tenoned and Pegged		
Tie Beams	6-1/4" x 4"	Pine	Hewn and Pit Sawn	Tenoned and Double Pegged		
Dragon Beams	5" x 4-1/2"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		
Hip Rafters	9" x 2-1/2"	Pine	Hewn and Pit Sawn	Butted and Nailed		

Pompion Hill Chapel, Huger South Carolina

Sitting on the banks of a tributary of the rivers Wando and Cooper, the building which now stands on the site is now known as Pompion Hill Chapel. It was erected between 1763 and 1766. This was the second building on the site. It was originally occupied by an Anglican Chapel as early as 1706—one of the first churches to be erected after the Church Act of that year. The building has an unusual form with a projecting chancel, an odd addition for the auditory-style plan that was prevalent throughout late seventeenth and eighteenth-century England and her colonies.⁵⁹ The projecting chancel creates a juxtaposition within the space—the chancel was set against the east wall, while its cedar pulpit is set against the western wall, connected by a brick paver-tile aisle. The rectangular interior is capped by a cove ceiling that has undergone extensive repairs throughout the building's existence. Similarly, the northern and eastern walls have been rebuilt several times, even in the twentieth-century due to settling and soil abstraction soil issues.

⁵⁹ See George Outram Addleshaw and Frederick Etchells, *The Architectural Setting of Anglican Worship* (Faber & Faber, 1956). But see below where the framing system calls into question the originality of the projecting chancel.



Figure 12: Pompion Hill south facade (Image: B. Fortenberry)

Truss System

The chapel is capped by a majestic jerkin-head roof clad with imported Welsh-slate from the original 1763 construction.⁶⁰ There is evidence on the northern side of the interior roof system that the cladding originally consisted of cedar or cypress shingles—several pieces of the original lath and shingles survive wedged between the current sheathing and the slate exterior. The roof system’s regular need of maintenance and repeated

⁶⁰ There are several North American slate replacements but a majority of the slates are of Welsh origin.

near failure is attributed to the replacement of the wood shingles with slate that has added unintended weight to the framing system.⁶¹

The chapel's roof system consists of a series of four king post trusses which carry the heavy slates over the coved interior of the chapel. The pan measures forty-eight feet in length and thirty-five feet wide. The king posts are 6-3/4" wide and 6" deep. They are planed on the eastern and western faces and hewn on the northern and southern faces. They rise some 10'-9" from the raised tie beam to the ridge, culminating in a diamond head, tapering only slightly when compared to the other king posts in this dataset. The king posts struts are tenoned and pegged into the king posts and run about 5'-3" from the joggle to the shouldered vertical support beams. These, like the king posts, are planed on the eastern and western faces and hewn on the top and bottom faces. These beams flank the king post four feet to the north and south. Their struts measure 6-1/4" wide and 6" deep; they sit centrally on the joggles.

⁶¹ Indeed, several iterations of engineering repairs have taken place in the last fifty years. The most recent work was completed by Craig Bennett in 2008.



Figure 13: Detail of king post and mark system (Image: B. Fortenberry)

The vertical struts, which might be considered queen posts due to their heft, are shouldered at their base on the outer ends, being 1-foot-wide at the base, tapering to 9" above the shoulder. They, like the king posts, are tenoned and pegged into the raised tie beam. The vertical braces carry the king posts struts set in the diagonal with a single peg. The brace carries upward, tenoning into the principal rafters with double pegs. The braces are 6" deep, like the king posts and struts. The principal rafters are tenoned and double pegged at the ridge into the king post head, and are similarly joined to the raised tie beams, forming the core of Pompion's truss system. The principal rafters are 9-1/2" tall and 5-1/2" deep. They are planed on the eastern and western sides and hewn on the

top and bottom faces. The raised tie beams run some twenty-one feet across the breadth of the roof space from principal connection to principal connection. They are 9" tall and 6-3/4" thick. They, too, are planed on the eastern and western side and hewn on the top and bottom faces. The principals dive some seventeen feet to the wall plates located at the base of the cove and appear to be double tenoned and pegged into double, parallel wall plates.

The common rafters are tenoned and pegged at the ridge and dive the full breadth of the roof system. They terminate onto a slight false plate, which floats above the primary wall plates. The common rafters are pit sawn on their eastern and western faces, hewn on the top and bottom faces, and measure 4-3/4" tall and 3" wide. The purlins are staggered just above the principal/strut connection and are tenoned and single pegged into the principals. They measure 7" high and 5-3/4" deep. The common rafters effortlessly ride up behind them. Braces are present throughout the system, alternating below and above the cords. They are tenoned and single pegged into the principals, they are pit sawn on the inward faces, hewn on the top and bottom faces and measure 5" tall and 5-3/4" deep.

The jerkin head contains light common rafters that are slightly smaller than the common rafters in the main body of the roof. They are butted and nailed in place and tied into the wider system through a light collar connection that links into the end principals. Here like we have seen elsewhere, the end principal trusses are not directly

tied into the end walls. The lower tie beams on both the eastern and western ends merely sit on a ledge below the cove, lapped over the wall plates. The wall plates are top-scarfed together roughly at the mid-point along the length of the northern and southern plates. The lower end tie beams are lapped over the false plate and the two primary wall plates providing tension to the end trusses. There is no evidence for a vertical peg which would bring the assembly together as would be common in Caribbean construction. At the eastern end, the end tie is cut off at an angle to provide access to the projecting chancel. This is an interesting clue as to the sequence of building construction. While previous scholars have maintained that the chancel was an original to the construction, the fact that this tie beam is cut off in what appears to be a historic cut might suggest the tie beam was severed at the eastern end for the construction of the chancel at a later date.

Much of the roof sheathing is second period when the original shingles were replaced with Welsh slate. The sheathing that appears to be original is made of tongue-and-groove-stock, while the later elements are simply butted.

What sets Pompion Hill Chapel apart from others in this study is its uniquely finished King Posts. Seemingly contradictory, given that no parishioners would see the finish, the King Posts are planed on the primary vertical faces—the eastern and western sides—while pit sawn on the northern and southern faces. Similarly, the principal rafters are planed on both the eastern and western faces while hewn on the top and bottom

faces. This likely has to do with the nature of preparation of the king post itself. Planing allows for a flat surface to work the alternate faces, allowing for maximum precision in the carpentry.

On the king posts the same set of carpentry marks distinguishes the style, and perhaps the origin of the building. Set apart from the usual Roman numerals by English framers, the building's carpenter Zacahariah Villepontoux and William Axson, used system of gouged tally marks with small flags pivoting off the top or bottom of the vertical mark on alternating forty-five degree angles.

The stylistic character of Pompion Hill Chapel remains unclear. The building sits within the combined parish of St. Thomas/St. Denis. Originally they were segregated parishes with St. Thomas representing the English population and St. Denis the French Huguenot residents of the area. The parishes were eventually brought together once the Huguenots fully assimilated into the English population of the parish. But the question remains, does Pompion Hill Chapel with its unusual plan represent a trace, a residual material manifestation of the Huguenot religion on the landscape of the Lowcountry (see Appendix 1 for a truss section).



Figure 14: Double wall plate, false plate, Pompion Hill Chapel (Image: B. Fortenberry)



Figure 15: Detail of king post, queen post, tie beam and principal connection, Pompion Hill Chapel (Image: B. Fortenberry)



Figure 16: Detail of tie beam, wall plate connection, Pompion Hill Chapel (Image: B. Fortenberry)



Figure 17: Detail shouldered queen post, Pompion Hill Chapel (Image: B. Fortenberry)

Table 5: Pompion Hill Framing Schedule

Member	Dimensions	Species	Preparation	Joinery	Spacing	Notes
King Post	6-3/4" x 6"	Pine	Planed and Hewn	Tenoned and Pegged		Four king posts present; 10'9" tall
Queen Posts	9" x 6"	Pine	Planed	Tenoned and Pegged		Shouldered
King Post Struts	6-1/4" x 6"	Pine	Planed and Hewn	Tenoned and Pegged		5'-3" from joggle to principal rafter
Principal Rafters	9-1/2" x 5-1/2"	Pine	Planed and Hewn	Tenoned and Double Pegged		
Common Rafters	4-3/4" x 3"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		
Purlins	7" x 5-3/4"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		
Tie Beam	9" x 6-3/4"	Pine	Planed and Hewn	Tenoned and Pegged		
Braces	5" x 5-3/4"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		

St. Stephen's Parish Church

St. Stephen's parish was formed in 1754, part of the third wave of parish establishment in the Lowcountry. Shortly after the parish was consecrated, a wooden church was erected on the current site. Like other wood edifices in the region, it was replaced after a major hurricane or storm with a brick structure in 1764. The initial contract with Joseph Palmer, a member of St. Stephen's congregation, did not yield satisfactory bricks for construction. Next they contracted Charles Cantey for some 150,000 bricks. Again, however, as Cantey began construction, the vestry did not find his bricks suitable for the job. And so like at Pompion Hill Chapel, the vestry turned to William Axson and Zacahriach Villepontoux for the construction of the building. They completed the structure by 1769.⁶²

Like its counterparts elsewhere in the Lowcountry, the building presents as an auditory plan (roughly rectangular in shape), but is internally arranged more closely with the longitudinal plan, with the liturgical elements concentrated on the eastern end of the structure. The altar sits on a raised step above the chancel floor behind a rail flanked on the eastern side by a large reredos. To the north sits the pulpit oriented towards the center of the space, raised slightly above the nave floor.

In a similar fashion to Prince George Winyah described above, St. Stephen's roof presents with a curvilinear parapet on the western and eastern ends which encloses a

⁶² Nelson, *Beauty of Holiness*, 113–114.

gambrel roof, the only example of such a roof form in this region. Today, the roof cladding comprises asphalt shingles, a modern addition. However, it is likely that in a similar fashion to Pompion, St Stephen's roof began life with a wood shingle roof that was eventually replaced with slate tiles.



Figure 18: St. Stephen's western facade (Image: B. Fortenberry)

Truss System

St. Stephen's roof structure spans some forty-two feet across the nave, which is crowned into a tray-ceiling, a fashionable Georgian architectural feature. The roof system runs roughly forty-six feet east to west and twenty-eight feet north to south. The truss system at St. Stephen's is similar in many ways to its earlier counterpart at

Pompion. The trusses themselves are planed on the eastern and western sides and marked with Villepontoux's tally-flag system (discussed above in both the Prince George Winyah and Pompion sections). Like Pompion Hill, at St. Stephen's, to allow for the raised ceiling, the truss system sits on a series of raised tie beams, with two sets of King posts that connect to the angularly defined gambrel roof. Later support posts have been added on the northern and southern ends, adding further rigidity to the system. Here, unlike at Pompion Hill Chapel, the common rafters are tenoned and pegged into the staggered purlins, again to provide further rigidity to the gambrel roof system.

The defining framing feature of St. Stephen's is the raised tie beams for a king and queen post system to accommodate the coved tray ceiling of the nave and the angular gambrel roof. The king posts themselves measure 10'-10" high. The raised king posts trusses are planed on the eastern and western faces and hewn on the northern and southern faces. Unlike other Anglican examples, they have a tall base, much taller than the other examples. They are set on a raised cord which is tenoned and pegged into the king posts base. The king posts measure 7" wide and 1'-2" deep. Like we have seen elsewhere they taper significantly to diamond heads. The struts sit squarely on the joggles and are single pegged into the base. The struts are 5-3/4" wide and 1' deep, they like the king posts are planed on the east and west vertical faces and hewn on the horizontal faces. They extend at a relatively flat angle to accommodate the gambrel roof from the tenoned and double pegged connection to the king post base. The struts are tenoned and double pegged into the principal rafters.



Figure 19: King post at St. Stephen's (Image: B. Fortenberry)

The principal rafters are 7-1/2" tall and 5-3/4" wide and are hewn on the top and bottom faces while pit sawn on the vertical faces. The principal rafters are double pegged into the diamond head of the king post at the ridge. The principal rafters are tenoned and pegged into the standing queen posts set along the northern and southern walls. A second set of principal rafters are then hinged down from the queen posts, diving down to meet an intermediate plate below. The queen posts dive to meet the

primary wall plate with a tenoned and double pegged connection. Access to these joints was not possible given the nature of the internal system.

The common rafters are 4-3/4" tall and 3" wide. They are hewn on the top and bottom faces while pit sawn on the vertical faces. They are tenoned and pegged at the ridge. They are planed on the east and west vertical faces and hewn on the top and bottom faces. In a similar fashion to the principals, the common rafters meet at the intermediate ridge where they then meet a second set of common rafters which are butted and pegged into place. This second intermediate set dives over the cove to meet a square false plate below which sits just above the primary plate.

The upper portion of the gambrel roof is effectively independent of the rising sections. This allows for the majority of the weight to be carried by the king posts without needing to carry the lateral weight of the side sections of the gambrel.

The purlins are slightly staggered and are single pegged and tenoned into the principals. They are hewn on the top and bottom faces and are pit sawn on the vertical faces. Like the rafter sets, there are two sets of purlins congruent in construction for both the upper and lower portions of the gambrel. The upper set sit at the half-way point between the queen posts and the ridge while the second set sits just below the hinge in the roof downward.

The tie beams measure 9-1/2" tall and 1-2" deep. They are tenoned and double pegged into the body of the king posts for the upper cord while the lower chord is

double tenoned and strapped into the king post. Both chords are tenoned and double pegged into the queen posts. Like at Pompion, the internal roof system is relatively independent of the eastern and western walls, with a vast majority of the stress being placed on the northern and southern walls. Indeed, the end principals are merely butted against the interior of the end walls with the corresponding tie beams sitting on an internal ledge. This is a product of the vertical thrust of the roof in contrast to the flatter thrust of a hipped roof as was seen at St. James Santee.

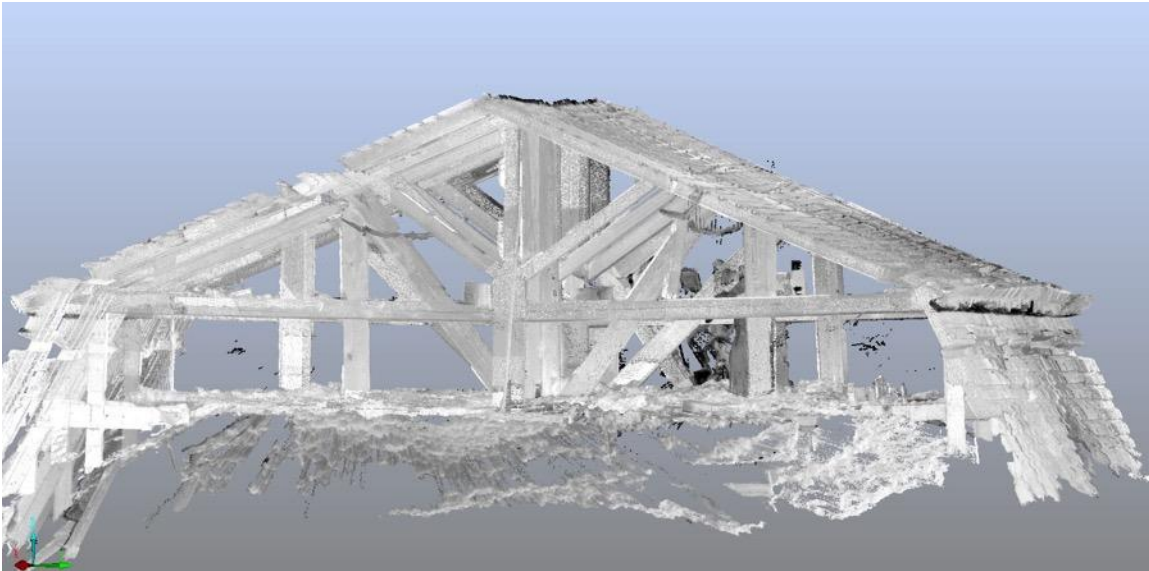


Figure 20: St. Stephen's Truss System, perspective view, 3D laser scans

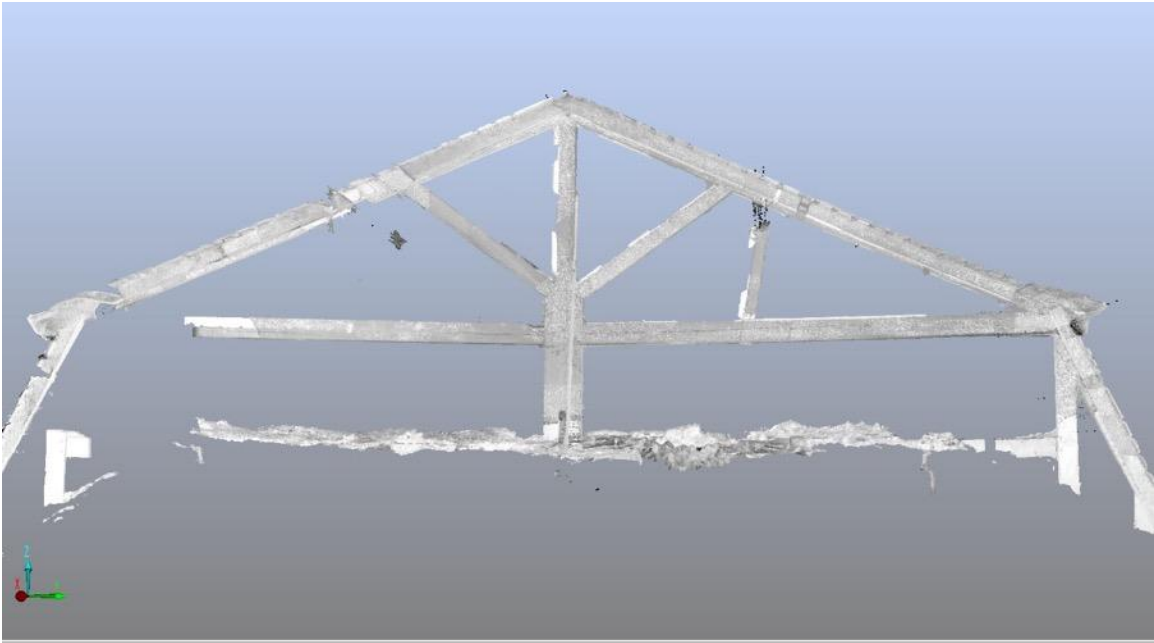


Figure 21: Orthographic view, St. Stephen's western king post truss



Figure 22: Perspective detail, king post truss, St. Stephen's (Image: B. Fortenberry)



Figure 23: King post base and struts detail, St. Stephen's (Image: B. Fortenberry)



Figure 24: Common rafters at the ridge detail, looking west (Image: B. Fortenberry)



Figure 25: Principal rafter, purlin connection detail, St. Stephen's (Image: B. Fortenberry)

Table 6: St. Stephen's Framing Schedule

Member	Dimensions	Species	Preparation	Joinery	Spacing	Notes
King Post	7" x 1'-2"	Pine	Planed and Hewn	Tenoned and Pegged		10'-10" tall
Queen Posts	6" x 1'-2"	Pine	Planed and Hewn	Tenoned and Pegged		
Struts	5-3/4" x 1'	Pine	Planed and Hewn	Tenoned and Double Pegged		
Principal Rafters	7-1/2" x 5-3/4"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		

Common Rafters	4-3/4" x 3"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		
Tie Beams	9-1/2" x 1'-2"	Pine	Planed and Pit Sawn	Tenoned and Pegged		

St. Thomas/St. Denis

St. Thomas/St. Denis sits just four miles from Pompion Hill Chapel. The building, however, dates to 1819. This church was the third sacred structure replacement on the site, which was first occupied in 1708 just two years after the establishment of the parish as a result of the church act. St. Thomas/St. Denis is the youngest building within this dataset. Its single aisle plan was adjusted in the twentieth century by re-orienting the liturgical arrangement from an auditory to longitudinal plan; the eastern apsidal chancel was added in 1838 to reflect this new liturgical focus. The roof is a gabled ridge running east to west along the main axis of the building.



Figure 26: St. Thomas/St Denis northern facade (Image: B. Fortenberry)

Roof System

Unlike the other roof systems within this dataset, St. Thomas/St. Denis comprises a common rafter system, a testament to the building's slight size. Within the dataset, St. Thomas/St. Denis' roof system is a product of the industrialization of roof system construction in the nineteenth century. Little finish went into the preparation of the members and builds used mechanically prepared elements which could quickly be fabricated and assembled on site.

The roof system at St. Thomas/St. Denis represents the emergence of industrialization in Lowcountry framing technology. While the previous roof systems

relied on a suite of complex connections and hand preparation of the member, a vast majority of St. Thomas/St. Denis consists of sash (or mill) sawn prepared members. The roof system is also considerably more slender than its predecessors and as such does not require a principal rafter or truss system, measuring just thirty-feet wide and roughly forty-feet long. The roof itself is a tall slender gable measuring some fifteen feet above the level of the to the ride. There is no ridge board present, and instead the common rafters are tenoned and pegged at the ridge. The commons rafters measure 4-1/4" wide and 6-1/2" tall and 19 pairs traverse the space. They are tenoned and pegged to the chords, which have been truncated sometime in the twentieth century as the wall plate has been replaced after a heavy restoration. The joists are now lodged into place in the new plate section. They are spaced between 1'-7" and 1'-8" apart running north to south. Collars keep the commons rafters in tension and a half dovetail-lapped joint with a peg holds them in place on the common rafters. This is seemingly archaic joint for the first third of the nineteenth century. The common rafters are 5-1/2" tall and 4-3/4" wide. At the gable end a series of double tusked tenoned outriggers are anchored into the end brick wall. These act as outrigger joists holding the assembly and the outer wall in tension and are through tenoned to the end joists. Seemingly the final pre-twentieth century addition to the roof system were a series of standing supports which run along the northern and southern walls inside of the struts. These are tenoned into the joists but are butted and nailed to the common rafters. They appear to be cypress wood,

while the remainder of the assembly is pine, pointing to the potential that these were added at a later date (see Appendix 1 for a section drawing).



Figure 27: Common rafter roof system at St. Thomas/St. Denis (Image: B. Fortenberry)

Table 7: St. Thomas/St. Denis Framing Schedule

Member	Dimensions	Species	Preparation	Joinery	Spacing	Notes
Common Rafters	4-1/2" x 6-1/2"	Pine	Sash Sawn	Tenoned and Pegged		
Collars	5-1/2" x 4-3/4"	Pine	Sash Sawn	Half Dovetail-lapped		
Joists	1'-6-1/2"	Pine	Sash Sawn	Tenoned and Pegged		

Discussion

Several patterns emerge that are directly related to building design and roof systems. First, for the city and town churches, such as Prince George Winyah and St. Michael's king and queen post systems, trusses were employed to support the side aisle plans relatively early in the building period. For the middling sized structures king post (and elevated king post) systems were employed for spans ranging thirty-five to fort feet in length. At the same time St. Thomas/St. Denis, the shortest (and youngest span) in the data set, utilizes a common rafter system, the simplest and lightest of the three major systems of English framing. There is a temporal dimension present within this dataset that is a false-positive. While it is true that within the buildings explored the earliest example, Prince George Winyah, employed a king and queen post truss, the later chapels of ease and parish churches use king posts and the youngest building, St. Thomas/St. Denis, has a common rafter roof. I do not believe this pattern is indicative of a large developmental process of framing in the region—the dataset biases it. The

simplest roofing system being used later is best explained by the emergence of the industrialization process of mill sawn timbers produced with ease and *en masse* and is helped by the modest span. The need for skilled builders and artisans, such as Villepontoux or Axson, was reduced dramatically, and so was the costs of these buildings.

This dataset does not present any patterns with regard to the preparation and finish of framing members, other than styles which appear to be directly linked to builders. In each case, hewn preparation can appear on any faces but most commonly on the bottom and back faces of common and principal rafters. This presumably would allow for more flush connections with sheathing. Particular builders with particular backgrounds have particular processes of fabrication. However, evidence from Prince George Winyah and St. Stephen's does point to different framing crews being responsible for different aspects of the system. On the king posts the "tally and flag" system is present in each case, while the common rafters contain the more common Roman numeral system. And so it seems that the more skilled crews (more expensive) were responsible for the less crucial systems (discussed below).

Relatedly, an interesting pattern emerged with respect to king post preparation and finish that is possibly directly related to builder practices. At both Pompion Hill and St. Stephen's, archival records indicate that Zachariah Villepontoux was the carpenter framing for both roof structures and he left his mark on its finish. Both the king posts at

Pompion and St. Stephen's have their primary vertical faces planed. There are two possibly (and equally divergent) reasons for this. First it might be style. The planed faces of the King Post provide them with a particular aesthetic quality—they are pleasing to the eye and best represent the level of craftsmanship required to both fabricate and assemble these truss systems. The second possibility is that this seemingly high-style finish was a necessity as a part of the fabrication process. Perhaps the builders needed a flat surface to lay the trusses on while working the overall shape of the king post and other framing details such as mortise pockets. This might be the case, however, if this was a necessity of the king post fabrication process then one might see it in other contexts.

Trusses in Service

Truss systems for Lowcountry churches were a direct result of the emergence of eighteenth-century liturgical forms in both town and country. They served similar and yet divergent purposes in this context. Much of this was driven by metropolitan design and changing notions of liturgical space. These purposes were different based on forms. In larger multi-aisled spaces, the king and queen post systems allowed builders to span multiple aisles as is the case at Prince George Winyah in Georgetown and in a similar fashion, ay St. Michael's in Charleston. It was in these seats of power that more traditional longitudinal plans continued to structure liturgical spaces, which dictated the use of gabled roofs. In the country, builders employed truss systems as solutions to

more fashionable rural designs, the longitudinal plans allowed for more diverse forms, such as the jerkin-head at Pompion, the gambrel at St. Stephen's, and the low-sloping hipped roof at St. James Santee. It seems that replication in the case of parish churches was not valued as much as unique forms and architectural profiles of the parish churches and chapels of ease. Perhaps we could think of these structures as unique signals for each parish, that defined their liturgical identities in the landscape. Or from a more mundane perspective, perhaps this diversity of forms was a product of the sorting out and experimentation process that Lowcountry buildings worked out in the middle of the eighteenth-century. Because these buildings were not on display in the same way as the city churches of Charleston, builders like Villepontoux and his team could experiment with metropolitan design in the rural environs of the Lowcountry parishes.

This discussion is incomplete. There are several buildings within the region that have yet to be examined. Additionally, there are several roof systems that currently do not have roof access. St. Andrew's Parish Church and Strawberry Chapel being the most notable for this discussion. More systems need to be added to this discussion, most especially some of those churches that are located within the city proper as well as other rural churches in the region such as St. Philip's, St. John's/St. Luke's, St. James Goose Creek, and Pineville. At the same time, a closer look is deserved at some of the buildings that no longer retain their roof structures—Pon Pon Chapel, Prince William Parish Church (Old Sheldon), and St. Helena's Chapel of Ease also do not have surviving roofs. However, comparing the spans of these buildings with existing examples of

similar spans constructed at similar times might provide insight into the possible roof systems employed at these sites.

CHAPTER FIVE: FRAMES IN TOWN AND COUNTRY

While the Lowcountry's Anglican edifices present a diversified evolution in their framing forms and technologies, the domestic dwellings of town and country present a related and distinct trajectory of framing technology. While Charleston is best known for the single house form, generations of architecture populated both the city's landscape. Eighteenth-century images of the city illustrate this diversity of forms. Pyramidal, gambrel, hipped, and gable roofs dot the city's landscape.

Much of this landscape, much like the city's wall, no longer exists save a select number of early to mid-eighteenth-century buildings. Some of these survivors are discussed here as examples of the evolutionary trajectory of Charleston's architecture leading to the emergence of the single house. Still, too, the rural environs of the Lowcountry once contained a host of buildings that dotted the landscape. Much like their urban brethren they have disappeared from the landscape of the Lowcountry, or have been so greatly altered, as is the case with the roof framing of Drayton Hall, that bear little to no resemblance to its historic character. And so the rural case studies presented here are a mere snap shot of the Lowcountry's region's plantation architecture.



Figure 28: *An Exact Prospect of Charleston-Town, the Metropolis of the Province of South Carolina*, Bishop Roberts, 1739 (Image: Carolina Room Charleston Country Public Library, B. Fortenberry)

Before the Single House

Charleston's iconic architectural form—the single house—did not arrive on the peninsula until the third quarter of the eighteenth-century. It was at this time that the gridded city began to foment what would become the Lowcountry's urban vernacular tradition; what Bernie Herman calls the embedded landscape—a fusion of environmental context and social circumstance.⁶³

⁶³ Bernard Herman, "Space in the Early American City," *Journal of the Early Republic* 24, no. Summer (2004): 319–26.



Figure 29: Typical single house, Church Street (Image: B. Fortenberry)

Prior to this maturation, Charleston's vernacular landscape more closely resembled the port cities of England's west coast such as Bristol—robust Georgian town houses. Herman similarly identified such buildings as being the precedents of early buildings in the English (and later British) Atlantic colonies. Five-bay center entry in

King's Square, Bristol formed mental blueprints for Charleston's early Georgian town houses for roughly the first one hundred years of settlement on the peninsula.

Like their counterparts in Virginia, such as the Thomas Nelson House and the George Wythe House in the Chesapeake, the early Georgian structures of Charleston presented five-bay center entry edifices. The earliest surviving examples from the Lowcountry include Drayton and Fenwick Halls and the Thomas Rose House (59 Church Street). Later structures, such as the Miles Brewton (27 King Street) and Heyward Washington House (87 Church Street) carried the exterior five-bay arrangement but controlled the incoming hospitality through the use of a fashionable center passage. Some of these are discussed below.

The interior arrangements of these structures reflect the evolution of British vernacular forms. Plan evolution notwithstanding, these eighteenth-century dwellings in town and country produced a similar footprint—two rooms wide and two rooms deep, an effective square block of Carolina masonry. Hipped roofs were the easiest building solution to the symmetrical area of those five-bay structures. But the means through which those roofs were framed changed over time as the colonial building traditions matured. The earliest town dwellings employed principal rafter systems that carried the equidistant spans, while later building leveraged king and king and queen post systems. These choices and why these choices were made are the subject of this chapter. The discussion begins with the earliest evidence of framing in the region. Next, it explores

some of the earliest examples of surviving framing in both town and country, followed by an analysis of the transition to truss systems in private dwellings. The chapter concludes with an early nineteenth-century example, which illustrates the full conversion to mechanized/industrial member preparation and the reduction in the need for skilled artisans in the fabrication of roof systems.

Earliest Framing Evidence in the Lowcountry

The earliest framing evidence in the region can be found in both historical depictions from early travelers to Georgia Sea Islands. A series of drawings completed by Von Reck in 1736 during his visit to Georgia's sea island, provides an unparalleled look at some of the earliest framing evidence in the Lowcountry.⁶⁴ The first of Von Reck's depictions, his *Hütten zu Frederica von Palmlaube Geflochten* or "Huts in Frederica woven in Palm leaves", shows two early shelters. Each uses a variation on the puncheon system where vertical members are set directly into the soil, with the primary posts being chosen for their "Y" or cratched shape on the standing end. These cratchets provide a bed for the primary horizontal members (ridge beams) to run across the interior of the space. The image on the left shows a secondary cross beam supported by a second smaller pair of

⁶⁴ Kristian Hvidt et al., *Von Reck's Voyage: Drawings and Journal of Philip Georg Friedrich von Reck* (Savannah: Beehive Press, 1980).

vertical posts with cratcheted peaks. This system is used to support a cooking pot. The roof/walls of the structure are thatched palm leaves.

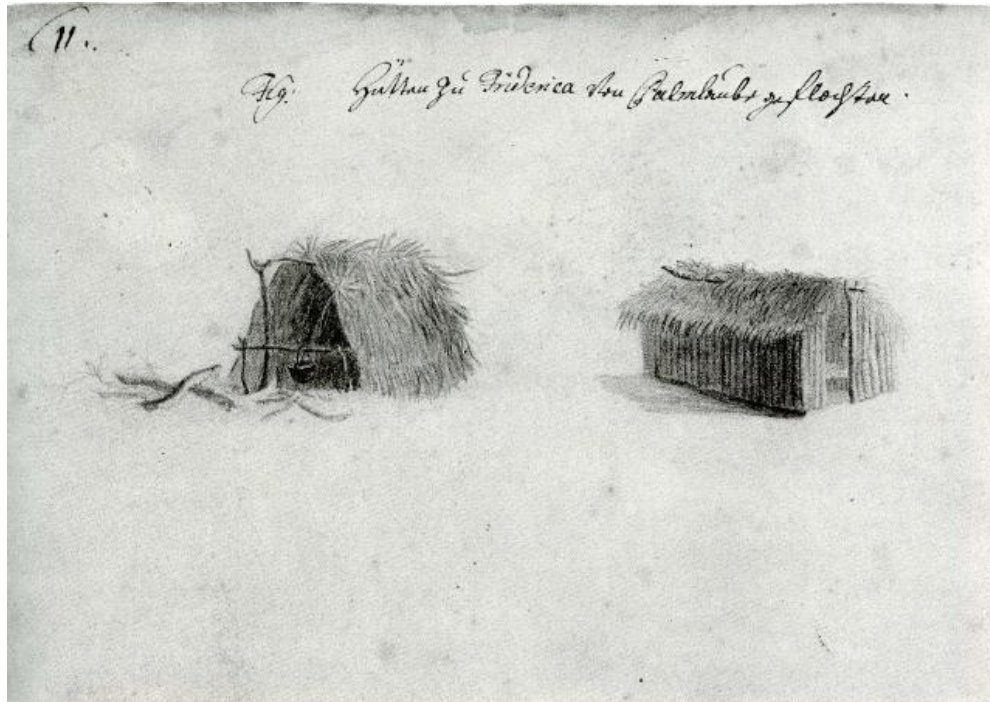


Figure 30: Von Reck's thatch huts.

The second drawing, on the right, shows a similar internal frame construction with cratchets supporting the horizontal ridge beam. However, in this case, a series of puncheon, "close-studded" posts are used to form a curtain or wall on the structure; strikingly similar to a palisade wall construction. The thatch roof system is supported by a series of light lath members; a raised floor is depicted inside. These buildings, according to Von Reck, were some of the earliest examples of earthfast architecture in the colony. The cratchet design is a familiar English colonial form. Archival accounts

from James Fort (1607) form John Smith recount a similar cratchet construction at Structure 160 (1608) inside of the fort.⁶⁵

Later in his volume of drawings, Von Reck depicts the first series of shelters on Ebenezer Island (likely New Ebenezer military camp), *Die erste Hütten und Gezelle zu Ebenezer*. Von Reck maintains these structures were some forty-feet long and twenty-four feet wide. They are shown as slightly different in construction, this time with a series of outer posts creating a rectangular shelter. The posts on the right side of the image are higher than those on the left, creating a shed roof effect. The internal framing consists of those vertical posts supporting wall plates and tie beams, but their connections are unclear. The corner posts perhaps consisted of the cratchet design, but the wall posts are perhaps joined in some fashion, yet the connection remains unclear. The roof system also appears to feature rafters running the high side (right) to the lower side; these appear to be butting on top or simply lapped over the wall plates. Finally, there appear to be a series of lath running perpendicular to the rafters to support the palm thatched connections. The secondary image in the background shows a similar system, standing posts with wall plates connected in the process of construction.

⁶⁵ Nicholas M Lucchetti, William M Kelso, and Beverly A Straube, *Jamestown Rediscovery: Field Report 1994* (Richmond: Association for the Preservation of Virginia Antiquities, 1994), 48–53.

These earliest iterations of framing technology are strikingly similar to those found throughout English colonial outposts in both the Chesapeake and the Caribbean.⁶⁶ Earthfast architecture was embedded within the English colonial mindset. But once colonial settlements began to mature, more sophisticated framing solutions were implemented based on contextual conditions. In Charleston and the Lowcountry surviving buildings illustrate this evolutionary processes as it took place in both Charleston's urban landscape and the plantations of the Lowcountry parishes.



Figure 31: Von Reck's sea island camp rendering

⁶⁶ Again see, Carson et al., "Impermanent Architecture in the Southern American Colonies"; Leech, "Impermanent Architecture in the English Colonies of the Eastern Caribbean: New Contexts for Innovation in the Early Modern Atlantic World."

Thomas Rose House

Similar in age to the earliest iteration of Hampton Plantation, the Thomas Rose House at 59 Church Street in Charleston was erected sometime around 1734. While much of the interior of the house was greatly altered by Albert Simons in the 1920s, the timber-framed roof system remains largely intact as Simons encased it with a series of dry wall partitions protecting it from the twentieth-century owners.

The Thomas Rose House is indicative of what is called the merchant house plan which was common throughout the urban Atlantic basin.⁶⁷ Early records indicate that bricks for the Thomas Rose house were imported as early as 1734 and the building was completed as early as 1735. Here, the merchant house plan consists of a hall and counting room on the ground floor with the best, drawing room and a private chamber on the second floor.

The footprint of the original house with stairhall set against the northern wall survives despite the major interior renovations by Albert Simons in the 1920s. Like its contemporary town houses, the Thomas Rose House has a hipped roof that borders on a pyramidal shape. Despite a change in the arrangement of the entry from the five-bay center entry to a more Charleston vernacular piazza entry sometime in the nineteenth

⁶⁷ Carter L. Hudgins et al., eds., *The Vernacular Architecture of Charleston and the Lowcountry 1670-1990* (Charleston: Historic Charleston Foundation, 1994), 57.

or early twentieth century, the roof system remains untouched by changes to the building fabric and plan.



Figure 32: Thomas Rose House eastern facade (Image: Library of Congress)

Framing System

While access to the roof system is severely hindered by the existing wall system, small scuttles on the eastern and western third floor walls gives limited access. A partial framing schedule was recorded for the hipped principal rafter roof, primarily along the southeastern corner and the central western wall. Access to other areas were prevented

by HVAC systems and lack of space for a body to traverse. Nonetheless, a partial picture of the thirty-two-foot-wide and thirty-seven-foot deep structure provides some of the earliest evidence of timber-framing in the region. The principal rafters are 8" tall and 5-3/4" inches wide, they are hewn on the top and bottom faces, but pit sawn on the vertical faces. Common rafters are 3-3/4" tall and 3-1/4" wide. The rafter tails are 3-3/4" high at the base, are butted and nailed in place, and measure 2'-2" long. The common rafters were hewn on the top and bottom faces and pit sawn on the vertical faces.

The purlins appeared to be staggered and tenoned and pegged into the principal rafters, the purlins appeared to hewn on the bottom faces. They could not be reached for measurements. Relative to the purlins at the Heyward Washington House these appear to be smaller. The hip rafters are 7-1/8" tall and 4-3/4" wide, they are pit sawn on the vertical faces and hewn on the bottom faces. Principal to common rafters were spaced 1'-7" and common to common were space 1'-3". From the southeastern principal to the hip rafter measured 12'-8". The sheathing ranged from 1/2" to 3/4" thick and ranged from 4-3/4" to as wide as 7-1/2". It appears to be made of pine and pit sawn. As such, the thought is that much of it is likely original.

Due to the fact that access for the measurements was inside of the wall cavity, details from some of the window and wall members could be collected. The sill for the dormer which faces Church Street measures 4" tall and 3" wide, hewn on the top and bottom faces and pit sawn on the vertical faces. The wall studs are 3-3/4" wide and 4-

1/4" deep. Their heights could not be measured due to access issues however, it was clear they were tenoed and single pegged into the wall plate; all four faces appear to be pit sawn. The wall lath is pit sawn pine measuring 1" high and 3/4" thick.



Figure 33: Detail of principal rafter, masonry connection, Thomas Rose House (Image: B. Fortenberry)



Figure 34: Studs and common rafters, Thomas Rose House (Image: B. Fortenberry)

Table 8: Thomas Rose House Framing Schedule

Member	Dimensions	Species	Preparation	Joinery	Spacing	Notes
Principal Rafters	8" x 5-3/4"	Pine	Hewn and Pit Sawn	Tenoned and Pegged	1'-7"	
Common Rafters	3-3/4" x 3-1/4"	Pine	Hewn and Pit Sawn	Butted and Nailed at the Wall Plate	1'-3"	
Rafter Tails	3-3/4" x 2'-2" long	Pine	Hewn and Pit Sawn	Butted and Nailed		
Purlins		Pine	Hewn and Pit Sawn	Tenoned and Pegged		
Hip Rafters	7-1/8" x 4-3/4"	Pine	Hewn and Pit Sawn	Tenoned and Pegged	12'-8"	

Wall Studs	3-3/4" x 4-1/4"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		
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Hampton Plantation

Hampton Plantation is one of the Lowcountry's earliest surviving great houses. A similar form is seen at Hampton Plantation as at the Thomas Rose House, albeit the structure's current form is much wider at nine bays on the principal façade. The original house dates to as early as 1735 and was designed as a typical Georgian edifice with five principal bays and a center passage. Daniel Horry took possession of the property through marriage in 1757. He added the second full story to the original house and widened the five-bay frontage to nine, adding a large great hall to the south and parlors to the north.

By the end of the eighteenth century, the eight column Adams-style portico was added to the western façade. The portico's roof has a distinct later framing system, clearly delineating the mid-century framing system from the end of century portico.

Hampton Plantation's roof system likely dates to the mid-eighteenth century, sometime around Horry's acquisition of the property. It is a hipped principal rafter roof with the Adams-style portico on the western side consisting of common rafters. Four sets of heavy principal rafters carry the load of the roof system. They are pit sawn on

the vertical faces and hewn on the top and bottom faces. The principals are tenoned and double pegged at the ridge. The same tenon and double pegged system joins the principals to the tie beams (these measurements were not accessible). The principals contain collars which are tenoned and pegged into place. They appear to be pit sawn on the vertical faces and hewn on the top and bottom faces. They could not be reached for measurements. The common rafters are generally pit sawn on the vertical faces and hewn on the top and bottom faces, they measure 5-1/2" tall and 3" wide. They are tenoned and pegged at the ridge, along with a slight ridge board. The purlins are staggered and are tenoned and pegged into the principals with the common rafters riding up behind. They are pit sawn on the inward and outer faces while hewn on the top and bottom faces. They measure 6" tall and 3-3/4" wide. There is clear evidence that the space was designed to be livable during the late eighteenth and early nineteenth centuries with lath and whitewashed plaster fragments present. However, the lath contains cut nails, so it does not date this date to the original period of the house.

Hampton Plantation, like the Thomas Rose House, has a typical mid-eighteenth century roofing system, with heavy principal rafters that were all prepared by hand. Still too, even the end of the century portico was made with hand-prepared timbers in the form of common rafters. This example, coupled with the Thomas Rose House and Miles Brewton House (discussed below), illustrates the common framing systems present in both town and country prior to the 1780s when truss systems came into fashion.



Figure 35: Hampton Plantation western facade (Image: B. Fortenberry)



Figure 36: Northeast hip rafter, Hampton Plantation (Image: B. Fortenberry)



Figure 37: Principal Rafter, collar connection, Hampton Plantation (Image: B. Fortenberry)



Figure 38: Purlin, principal rafter connection, Hampton Plantation (Image: B. Fortenberry)



Figure 39: Common rafter, principal rafter, plate and false plate connection (Image: B. Fortenberry)



Figure 40: Hip rafter detail, Hampton Plantation (Image: B. Fortenberry)

Table 9: Hampton Plantation Framing Schedule

Member	Dimensions	Species	Preparation	Joinery	Spacing	Notes
Principal Rafter	6" x 3-3/4"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		
Common Rafters	5-1/2" x 3"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		

Miles Brewton House

The Miles Brewton House, at number 27 King Street, is another mid-century town house in an urban double pile form. It dates to the last third of the eighteenth century, in 1769, and its yard had major renovations in the 1820s and 1840s.⁶⁸ Like the Thomas Rose House, the Miles Brewton House is covered by a pyramidal hipped roof, with a projecting gabled portico. The plan of the building demonstrates the maturation of the British interior plan with a center passage that provides a central and unified channel for the control of movement through the ground floor. Like its counterpart at the Heyward Washington House (described next), the passage culminates in a central, rear stair hall providing access to the upper floors. Brewton and his family did not have long to enjoy their town lot; they were all lost at Sea in 1775 just six years after the structure was completed. After this tragic event it is worth noting that the British Garrison used the

⁶⁸ Hudgins et al., *The Vernacular Architecture of Charleston and the Lowcountry 1670-1990*, 156–158.

house as their home base through the occupation of Charleston during the American Revolution.



Figure 41: Miles Brewton House eastern facade (Image: B. Fortenberry)

Brewton and his following occupiers of the site sought to create a rural feel within the walls of the property. Along the northern boundary of the property, a series of outbuildings, including quarters, kitchen and a later carriage house, created a vast exterior service wing for the house. In the rear yard, a garden and a creek provided the sense of a rural landscape vista in the heart of the urban peninsula. Like its counterparts, Brewton's mansion is covered by a hipped roof within a projecting gable

porch that was likely original to the building. It, like many of the other projecting gabled porticos, consists of a common rafter roof.

Miles Brewton is one of the rare examples of eighteenth-century architecture where a joiner and framer is known— a man by the name of Ezra White, trained in London, although it is unclear whether White was responsible for anything other than finish woodwork and framing. John Lord and Thomas Woodin are also identified in the woodworking of the upper floors.⁶⁹

Roof System

The roof appears to be a hipped principal rafter roof with two closely spaced principal members on the eastern and western (four in total) and one on both the north and south sides. Here we see a slight variation in the presentation of the roof structure in that a series of principal collars bring stability to the upper portions of the roof. Those collars are supported by a series of mortise and tenoned struts on each of the principal rafters. These are double pegged at both the collars and the principal rafters.

At the ridge, the principal rafters are lapped and pegged into place by a single large trunnel. These are on the eastern and western side of the structure. On the north and south side these appear to be butted onto a central ridge beam, held in place by gravity; the principals appear to be butting the hip rafters.

⁶⁹ Hudgins et al., *The Vernacular Architecture of Charleston and the Lowcountry 1670-1990*, 156–158.



Figure 42: Ridge of Brewton principal rafter roof (Image: B. Fortenberry)



Figure 43: Ridge beam, hip rafter, principal rafter connection, Miles Brewton House (Image: B. Fortenberry)

Three of the hip rafters appear to be replaced sometime in the nineteenth century. Instead of replacing the entire member, they left the portion of the member at the ridge in place and scarfed the lower portion of the rafter out. Because the principals are held in place by gravity, this scarfing replacement allowed for the upper sections of the ridge to stay in place while the lower sections could be replaced. Principal rafters are 9" tall and 5-3/4" wide. These appear to be planed on the vertical faces and hewn on the top and bottom faces. These do not have carpentry marks that can be seen from the roof attic.

The purlins are interesting in that they are not consistent in form across the hipped roof. On the east-west slopes there are two single purlins which have common rafters pegged in the eastern sides. These purlins run from hip to principal rafters and the common rafters all ride behind the purlins. These purlins are below the level of the common rafters. The purlins measure 8" high and 3-3/4" wide. The common rafters are 6-1/2" high and 3" wide. The common rafters appear to be pit sawn on all four sides. The later (likely nineteenth-century repairs) are evident in that the original hips have wrought nails joining the hip rafters to the commons. The collars on the principal rafter pairs and they measure 8-3/4" tall and 6" wide. While the collars on the common rafters are between 6" and 7" tall and 2-3/4" wide. All of these are sash sawn and lapped over the principal collars.



Figure 44: Hip rafter detail (Image: B. Fortenberry)

The north-south principal collars are tenoned into the east-west collar and just sit on the central supporting posts that are tenoned into the principal collars. These are hewn on the top and bottom faces, put sawn on the vertical faces and pegged in place.

Due to the historic partitions, the wall plates, as well as the areas outside of the partition attic space above the coved ceiling were not accessible during the site visit.

The best room (the drawings room below the coved ceiling, does not take up the entirety of the front building width. Instead, a more private parlor (or withdrawing room) sits to its the north. This arrangement is very much like the second floor front

room setup at the Thomas Rose House, a common iteration of the second floor of the merchant house plan in the Lowcountry.⁷⁰

Struts were added for support under the principal rafters and are tenoned and double pegged in place, while the common rafters are butted and nailed at the ridge. It appears that the south east hip rafter is original and is hewn and pit sawn with wrought nails connecting the common rafters to the hip rafters. This nailing, as opposed to joinery is something that we have seen in other hipped rafters.

Joists above the coved best room are 8" tall and 3-3/4" wide and appear to be planed on the vertical faces and hewn on the top and bottom faces; their shape make them appear as though they are later in date but their finishes suggest that they are indeed eighteenth century in date. As elsewhere, it appears that the original roofing material was wood shingles, only to be replaced by slates at a later date.

⁷⁰ At the Thomas Rose House, it was Albert Simons who opened up the upper drawing room as it is arranged today. Historically however, the front second floor space was partitioned into a best room and a private room set against the northern wall of the building. We tend to see a different plan often in the Caribbean, see for instance see Louis P. Nelson and Edward A. Chappell, eds., *Falmouth, Jamaica: Architecture as History* (Mona: University of the West Indies Press, 2014) for example of Caribbean town houses.



Figure 45: Purlin detail, Miles Brewton House (Image: B. Fortenberry)



Figure 46: Principal Rafter, collar connection detail, Miles Brewton House (Image: B. Fortenberry)

The Miles Brewton House is similar in execution to the Thomas Rose House in that they both use a similar system of hipped principal rafters to achieve the high-profile, steeply pitched hipped roof—a common feature of Georgian houses. This preference for roofs on display for the passerby from street level begins to wane in the later years of the Georgian and early Federal periods, and as such principal rafters alone are no longer able to support the shallower pitches. They need central, rigid supports to keep the roof system in tension. Builders in Charleston quickly turn to king post trusses to achieve their ends.

Table 10: Miles Brewton Framing Schedule

Member	Dimensions	Species	Preparation	Joinery	Spacing	Notes
Principal Rafters	9" x 5-3/4"	Pine	Planed and Hewn	Tenoned and Pegged		
Common Rafters	6-1/2" x 3"	Pine	Pit Sawn	Tenoned and Pegged at the Ridge; Butted and Nailed at the Wall Plates		
Collars	6" x 2-3/4"	Pine	Sash Sawn	Lapped		
Joists	8" x 3-3/4"	Pine	Planed and Hewn	Lapped over the Wall Plates		

Heyward Washington House

The Heyward Washington House at 77 Church Street is a classic Charleston double house with a five-bay façade and center entry. While the lot was granted to Joseph Elliott in 1694 as an original plot in the Grand Modell, the existing building dates to the 1770s, when planter Colonel Daniel Heyward purchased the property. The outbuildings in the rear lot however, date to the latter part of the eighteenth century.

The structure's internal plan is organized around a central passage with flanking entertainment spaces on the ground floor. The passage culminates in a stair hall which leads to more entertainment and private spaces above. The double-piled spaces were originally paneled in a late Georgian style. The house now serves as a public museum owned by the Charleston Museum.⁷¹



Figure 47: Heyward Washington House Eastern Facade (Image: B. Fortenberry)

⁷¹ Hudgins et al., *The Vernacular Architecture of Charleston and the Lowcountry 1670-1990*, 48.

Access to the framing system at the Heyward Washington House is limited to the roof system. However, information about the first floor framing could be gathered in the cellar (this was not covered by this field collection campaign). There, a duo of king posts carry a low-sloped hipped roof clad in North American slates. The internal framing appears to date to the original 1770s edifice with little alteration save the compulsory alteration of the members with the addition of an HVAC system when the property was converted to a museum. The structure itself has a low-sloping roof by estimates around 30 degrees and stands roughly forty-feet to the street frontage and forty-five feet deep. It is this shallow slope that distinguishes this building from its earlier urban Georgian counterparts discussed above. When compared to the Miles Brewton House and the Thomas Rose House, the shallowness of the roof pitch would seem to be the differentiating factor that necessitated the use of the king post truss system.

The roof is comprised entirely of pine with king posts that are planed on the primary faces (east and west) and hewn on the secondary faces (north and south). They are 1'-1-1/2" wide and 6-3/4". Like their counterparts at Pompion Hill and St. Stephen's Parish church, the choice of planing the primary faces of the king posts seems to be an interesting preparation choice, one that perhaps are again a testament to style or perhaps preparation of the principal members so as they lay flat on the preparation surface. The king post's struts are prepared slightly differently, hewn on the upper and lower faces while pit sawn on the east and west faces. They are tenoned and connected

to the king post joggle with a single peg and are also tenoned and pegged to the principal rafters on the northern and southern sides of the building. The king post assembly itself is strapped to the tie beams using wrought-iron strapping and pins as is common in truss construction. Like the King Posts the principal rafters are planed on the vertical faces and hewn on the horizontal faces. They, too, are tenoned and pegged at the ridge and wall plates and measure 6-3/4" wide and 9" tall.

Common rafters are pit sawn on the vertical faces and hewn on the horizontal faces; they are butted and nailed to the false plate but are tenoned and single pegged into the ridge board. The purlins size varies considerably but on average are 5-1/2" tall and 4-1/4" wide. However, they all appear to be hewn on the horizontal faces and pit sawn on the vertical faces. They are staggered, being pegged into the principal rafters with the common rafters riding up behind. Hip rafters are planed and pit sawn and are 9" tall and 6" wide. They are tenoned and double pegged at the ridge.

The tie beams are pit sawn on the east and west faces and are hewn on the top and bottom faces measuring roughly 8-1/4" square—they are tenoned into the wall plate. The plates measure 7" tall and 3-3/4" wide and appear to be hewn and possibly pit sawn. A typical thin false plate seen elsewhere in mid-late eighteenth century buildings carry the common rafters. They appear to be pit sawn and measure 1-3/4" tall and 9-3/4" wide. The girders frame the king posts and are tenoned and pegged to the

plates. They are 7-1/2" high and 3" wide. The joists are slightly smaller than the girders and are hewn and pit sawn measuring 7-3/4" high and 3" wide.

The sheathing appears to have been replaced as a patchwork, with multiple periods evident. There is no evidence for sheathing boards that were connected with a tongue and groove. Instead, only butted boards were seen during the investigation.

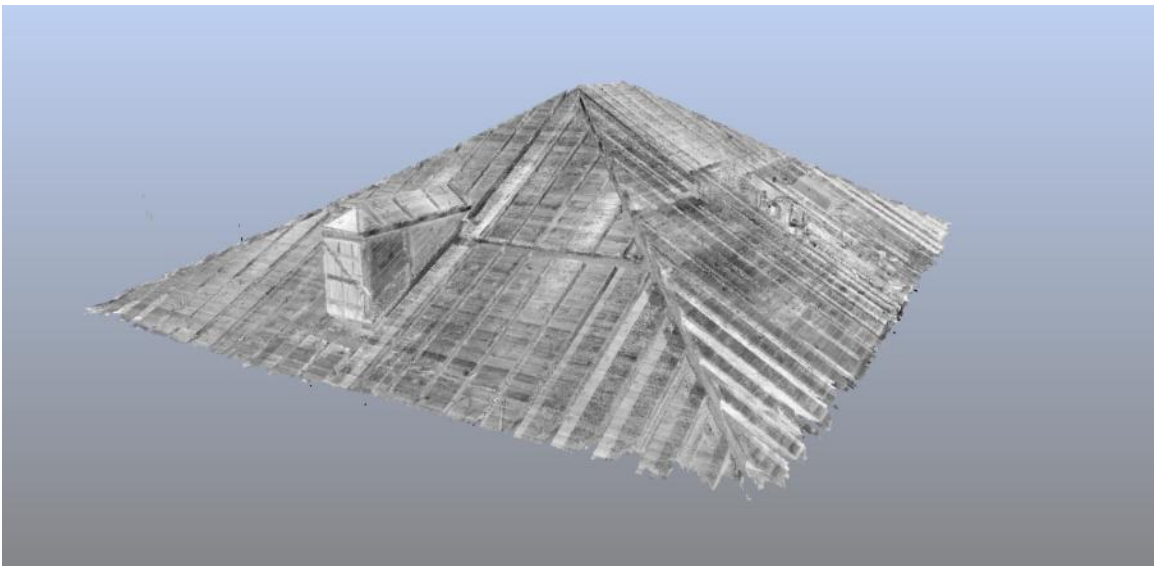


Figure 48: 3D perspective view, northeast corner, roof system, Heyward Washington House

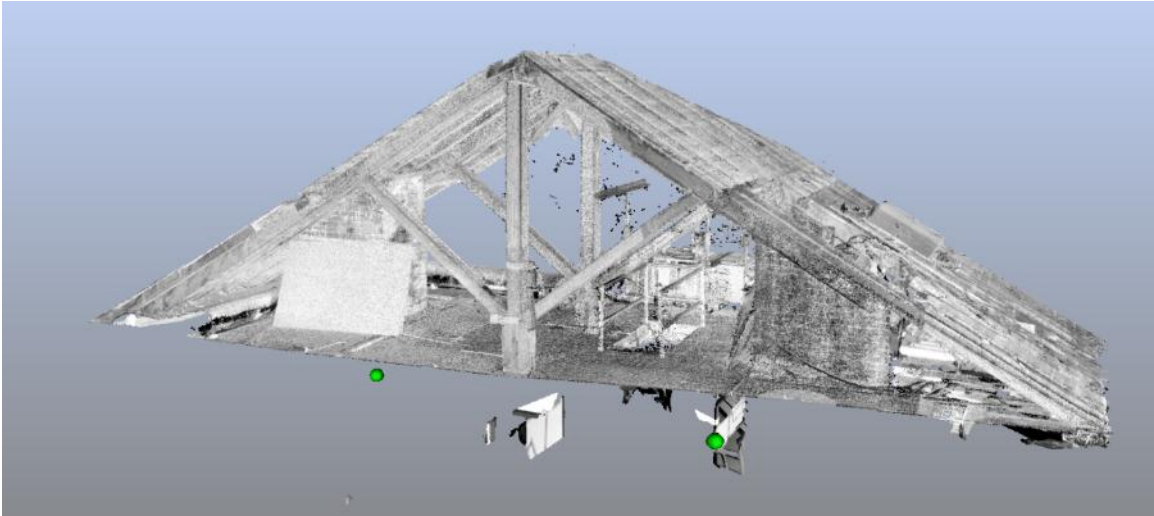


Figure 49: 3D section, perspective view, northeast corner, Heyward Washington House

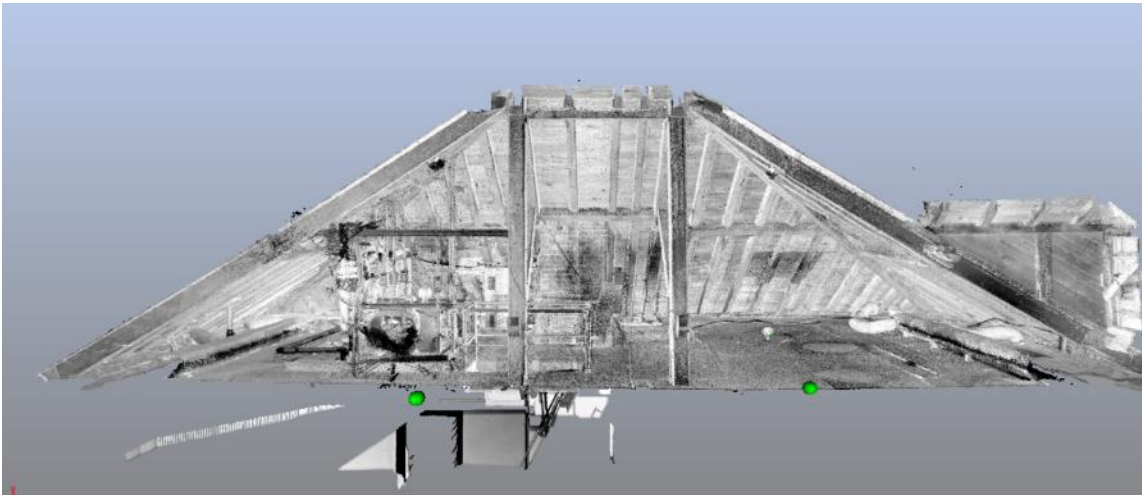


Figure 50: 3D south elevation, Heyward Washington House

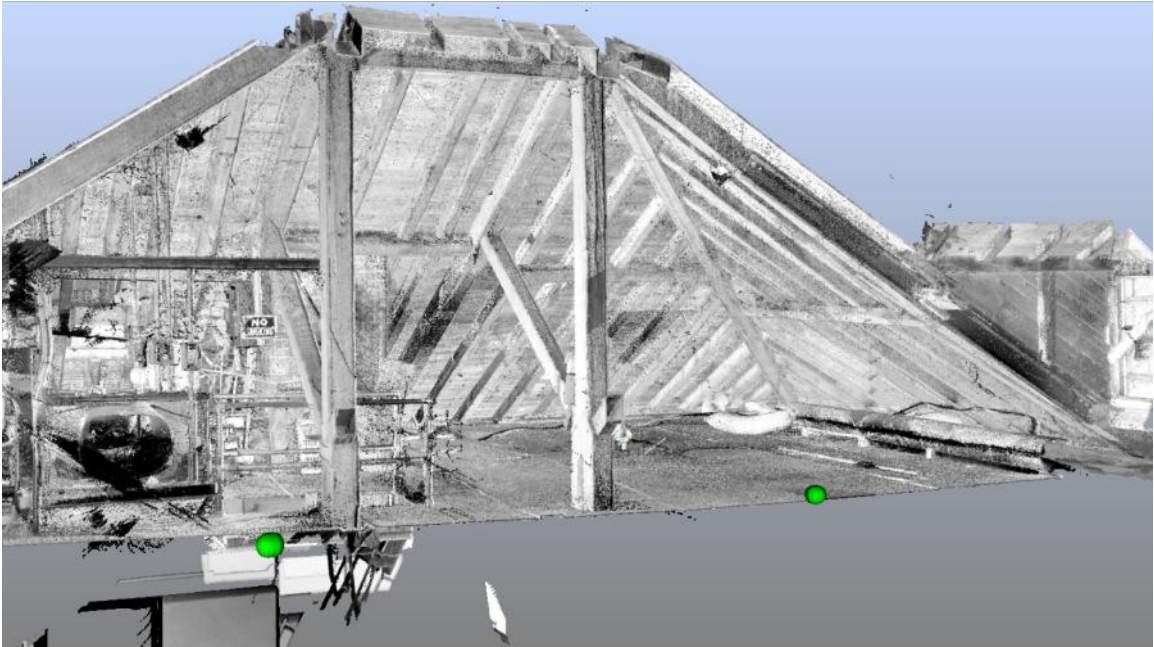


Figure 51: 3D perspective detail, south elevation, Heyward Washington House



Figure 52: 3D detail, king post base, Heyward Washington House

Table 11: Heyward Washington House Framing Schedule

Member	Dimensions	Species	Preparation	Joinery	Spacing	Notes
King Posts	1'-1/2" x 6-3/4"	Pine	Planed and Hewn	Tenoned and Pegged		Wrought-iron strapping present
Principal Rafters	6-3/4" x 9"	Pine	Planed and Hewn	Tenoned and Pegged		
Common Rafters	5-1/2" x 4-1/4"	Pine	Hewn and Pit Sawn	Tenoned and Pegged at the ridge; butted and nailed at the False Plate		
Purlins	5-1/2" x 4-1/4"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		
Hip Rafters	9" x 6"	Pine	Planed and Pit Sawn	Tenoned and Pegged		
Tie Beams	8-1/4" x 8-1/4"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		
Wall Plates	7" x 3-3/4"	Pine	Hewn and Pit Sawn	Lapped		
False Plates	1-3/4" x 9-3/4"	Pine	Pit Sawn			
Girders	7-1/2" x 3"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		
Joists	7-3/4" x 3"	Pine	Hewn and Pit Sawn	Lapped		

Discussion

The Heyward Washington House represents the transition from the principal rafter systems at the Miles Brewton House and even earlier at the Thomas Rose House to king post construction in Charleston and the Lowcountry. While such truss systems had been adopted for civic and religious buildings as discussed in Chapter Four, this is one of the earliest examples of that technology being translated to the domestic form. Despite this transition in the sense of the framing system, all of the timbers are prepared by hand or by a manually operated saw, a further element of preparation evolution that is present in following examples. The reasons for this transition are simple. As the Georgian period begins to shift to the Federal period, flatter roofs become more desirable. Towering roof forms were no longer on display, as in the case of the Miles Brewton and Thomas Rose houses. They were designed to be hidden away, with the exterior focus on the façade itself, with larger panes of glass and slighter architectural features. The most efficient means to carry that low-sloped hipped roof was to erect central king posts that would carry the load down to central ties that would carry the weight to the building exterior. Such forces would not work with solely principal rafters in place. The king post thus lessen the initial loading on these tie beams allow for them to be lighter than in earlier examples.

Nathaniel Russell House

The Nathaniel Russell House at 51 Meeting Street is one of the premier examples of Federalist and Neoclassical architecture in the British Atlantic world. The thirty-one-foot-wide and sixty-two-foot-deep edifice dates to 1808. It was commissioned by Nathaniel Russell, one of the wealthiest merchants in the Western Hemisphere during the late eighteenth and early nineteenth centuries. The house is notable in its siting in that it is stepped back from Meeting Street some twenty yards to allow for a small green space (garden) as a buffer zone between street traffic and the façade and the principal entry into the residence.⁷²

The structure itself presents a three-bay façade, much narrower to the street frontage than the other examples discussed in this chapter. The building is thus deeper than it is wide to Meeting Street, but possesses a projecting side-wing which serves as the principal dining space on the ground floor. The room, which is hexagonal in shape was a fashionable spatial presentation during the Federal period.⁷³ The interior plan is designed with varying levels of privacy and restriction of access for visitors. Upon entering through the street-facing center bay one enters a reception space with dual opposing doors. This was very much the initial and most public entertainment space for the house. Upon penetrating the outer barrier, visitors enter an open chamber with a spiral staircase to the right (north) and the hexagonal dining room to the left (south). On

⁷² Hudgins et al., *The Vernacular Architecture of Charleston and the Lowcountry 1670-1990*, 18–23.

⁷³ Herman, *Town House: Architecture and Material Life in the Early American City, 1780-1830*.

the second floor, a series of entertaining spaces—drawing and withdrawing room—provide both public and private spaces for hospitality. The third floor once housed more private chambers, now a repository for Historic Charleston Foundation collections.



Figure 53: Nathaniel Russell House southern facade (Image: B. Fortenberry)

The roof comprises a series of interlocking hips with chimney stacks on the northern and western ranges. It is clad with North American slates and mortared-in terra cotta ridge caps materials that were replaced after Hurricane Hugo to mimic what

had been on the house since it was repaired after a tornado in 1811. The framing system is only accessible in the attic space; none of the internal framing is observable in the building's current condition.

Framing System

The Russell House roof system itself consists of comprises a king and queen post truss system wrapped around the T-shaped of the building. In this iteration, the king posts are set up on the queen posts to the ridge. Like elsewhere, the king posts are planed on the primary faces and pit sawn on the secondary faces. They measure 11-1/4" wide and 4" deep. Unlike what we have seen in other examples, the king posts are tenoned through the horizontal member and double pegged at a forty-five degree angle (a similar pattern of pegging is seen throughout this system). The king posts significantly taper at the ridge culminating in a diamond pattern, as much as 3 to 4 inches. The king posts are double pegged into the principal rafters. The queen posts are similarly planed on their primary faces and pit sawn on the secondary faces. They measure 8-1/4" wide and 7-3/4" deep, making them roughly square in appearance. They, like the king posts, are tenoned and double pegged at a fort-five degree angle downward from left to right. The queen post struts are pit sawn on all four faces. They are 4-1/2" wide and 3-1/4" deep. Unlike the principal posts, they are tenoned and single pegged to the principal rafters. The connection of the queen posts to the tie beams is generally obscured. However, in the central range, the western most queen post truss shows that it is indeed tenoned and double pegged at a forty-five degree angle as in the connections above. The tie beam

itself is 10" tall and 8" wide, with the queen posts sitting flush on the tie beam surface. The tie beams appear to be planed on the vertical faces and hewn on the horizontal faces.

The principal rafters are 10-3/4" wide, 3-1/3" tall, and are pit sawn on the vertical faces and hewn on the horizontal faces. There was some debate during the field visit as to the preparation of the common rafters. In some instances they appear to be pit sawn, however, in other instances they appear to be sash (mill) sawn. In any event they measure 3-3/4" wide and 2-3/4" to 3" deep. These, unlike the major (principal) members of the system, are merely butted and nailed to the false plate and at the ridge. This suggests they are in fact not pit sawn but rather sash sawn in preparation. The sheathing seems to be replaced in many instances.

The Nathaniel Russell House demonstrates the changing process of member preparation and system connections that we began to see at the Heyward Washington House where common rafters, while still prepared by hand, were butted and nailed to the false plate. Here we begin to see the introduction of mechanized preparation process with respect to the common rafter system.



Figure 54: King and queen post truss system Nathaniel Russell House



Figure 55: Detail of through-tenon of king post, Nathaniel Russell House (Image: B. Fortenberry)



Figure 56: Common rafters connection to wall plate, Nathaniel Russell House (Image: B. Fortenberry)



Figure 57: Hip rafter detail, Nathaniel Russell House (Image: B. Fortenberry)

As the nineteenth century progressed, the growing presence of more mechanized preparation and fewer connections continued to grow, reducing the reliance on skilled artisan labor for system fabrication. At the Russell House, we see this process in action. While the major members are still prepared by skilled craftsmen, the non-load bearing members are prepared mechanically by a mill or sash saw. This process of further mechanization continued to gain momentum in the nineteenth century.

Table 12: Nathaniel Russell House Framing Schedule

Member	Dimensions	Species	Preparation	Joinery	Spacing	Notes
King Posts	11-1/4" x 4"	Pine	Planed and Pit Sawn	Tenoned and Pegged		
Queen Posts	8-1/4" x 7-3/4"	Pine	Planed and Pit Sawn	Tenoned and Pegged		
Struts	4-1/2" x 3-1/4"	Pine	Pit Sawn	Tenoned and Pegged		
Tie Beam	10" x 8"	Pine	Planed and Hewn	Tenoned and Pegged		
Principal Rafters	10-3/4" x 3-1/3"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		
Common Rafters	3-3/4" x 3"	Pine	Sash Sawn	Butted and Nailed		

The Joseph Manigault House

The Joseph Manigault House is a five-bay wide, three bay deep, Neoclassical house built at the turn of the nineteenth century, in 1803. Archival accounts claim the edifice was designed by Renaissance-man Gabriel Manigault himself. The building's location in the northern suburbs of nineteenth-century Charleston allowed the structure to sit in the center of a larger lot, providing for green space within a walled compound. The house is oriented with its longitudinal axis running east-west, with visitors entering on the south façade through a raised porch in the center bay. Professed by some to be a Huguenot plan, one enters into a wide passage with flanking entertainment spaces on the eastern and western side of the building. Moving north through sliding doors, one enters a cross-passage and a magnificent spiral staircase, which provides access to the middle floor.⁷⁴

The building is heated by a pair of internal chimney stacks which project from the ridge of the hipped roof. The roof itself is low-sloping, perhaps 35 degrees, and is clad with North American slates and terra cotta ridge caps mortared in place. Access to the framing system is limited to the roof; however, during the site visit, renovations on the third floor provided a partial view of the exposed stud framing in the apsidal room set over the circular stair hall.

⁷⁴ Poston, *The Buildings of Charleston: A Guide to the City's Architecture*, 612–613.

The building is roughly sixty-feet wide and twenty-eight feet deep. The roof system appears to be original to the 1803 construction with little alteration other than some beaded plank partitions that likely date to the late nineteenth or early twentieth century.



Figure 58: Manigault House southern facade (Image: Library of Congress)

Similar to the Russell House and of a similar construction period, the Manigault House roof consists of a king and queen post truss combination system to support the North American slate roof. There are four sets which frame the exterior and interior of the chimney stack duet. The queen posts are 7-1/2" wide and 5" deep. In a similar

fashion to what we have seen elsewhere in both domestic and ecclesiastical settings, the faces of the queen posts have been hewn on the outer faces (facing outward to the perimeter of the building) and planed on the inward and lateral faces. This distinctive preparation pattern that was repeated on each of the queen posts. The struts extending from the queen posts are tenoned with a single peg into the principal rafters. They are planed on the western sides but hewn on the remaining sides (the inverse of the pattern seen on the queen posts themselves). Is this perhaps evidence that the queen posts and their struts were all derived from a single piece of wood and prepared as such before being divided for framing? This pattern of planing one side while hewing the others might be a product of the need to lay members flat on one side while preparing the remaining surfaces (as discussed in the previous chapter). The beam of the queen posts is in similar size to the struts and is planed on the western and bottom faces and hewn on the eastern and top faces. They are tenoned and single pegged into the queen posts. Rising from the queen post beam is the king post, set equal-distant from the queen posts. The king posts measure 11" wide and 4" deep, in a similar fashion to the king posts at the Russell House. Similarly, they are through tenoned in the queen post beam, however here they are quad-pegged at the queen post. An interesting note concerns the eastern most queen post beam, two of the pegs have rotted out and as such have been replaced by wrought iron spikes. Like we have seen at the Russell House, the king posts taper dramatically, some three to four inches, at their peak, and culminate in a diamond head that is double pegged on either side into the respective principal rafters.

The queen posts are tenoned and double pegged into the tie beams in a typical fashion, and demarcated by Roman numerals. The tie beams measure 10" tall and 6-1/2" wide. They are hewn on the western face and planed on the eastern and top face. The connection between the tie beams and wall plates are obscured by masonry set over the wall plates that in turn carry the slight false plate and the common rafters. As has been the hallmark of the Lowcountry vernacular, the false plate is a shallow board set on top of masonry, measuring only 1-3/4" high and 9-3/4" wide. The common rafters are butted and nailed to the face. The intermediate joists are pit sawn (possibly sash sawn in some cases) and are typical nineteenth century forms being taller than they are wide. Their connection to the outer-plate is obscured by masonry and existing floor boards. however one might conjecture that they are lapped over top of the plates. The hip rafters on the eastern and western ends of the roof system are 9" tall and 5" wide. They are planed on the vertical faces and hewn on the horizontal faces.

The principal rafters are planed on the bottom and west (to the right when looking at the members from the interior of the roof) and hewn on the east and bottom faces. They measure 10" tall and 5-3/4" inches wide. The common rafters are considerably more slender than the principals and measure on average 6" (with a range from 5-1/2" to 6-1/4") tall and 3" wide. They are pit sawn on the northern and southern faces and hewn on the remaining faces. The common rafters are butted and nailed to the ridge board while the principal rafters are each double pegged into the king post heads.

The purlins are planed on the bottom face and hewn on the remaining faces. They measure 4-1/2" tall and 7" wide. In typical fashion, the purlins are through tenoned into the principal rafters and are staggered throughout a majority of the roof system, with the common rafters riding up behind to the ridge. Nonetheless, in the central range in the interval between the chimney stacks there is a single line of continuous purlins. This seems to be an idiosyncratic design feature that created some sagging in the middle range. To combat this sagging, a series of posts were bird-mouthed into the purlins for support sometime after initial fabrication. Most of the sheathing is replaced as many of the boards are circular sawn and merely butted in place. The semi-circular projection is framed by a series of common rafters that pivot around a central king post set into a single, mini tie beam running north to south through the space. The dimensions of the king posts are identical to those in the main roof system. However, this one is considerably shorter given the lower height of the apsidal projection. The king post ties into the relatively smaller principal rafter pair in the apsidal projection. Measurements from these members were not taken because the floorboards over the apse were not stable enough for a person to stand.

The Manigault roof presents a further iteration in the evolution of framing in the Lowcountry. What is interesting about this roof is the use of different member face preparation methods and how they differ throughout the system. As has been the case throughout this discussion, the king and queen posts members required the most skill to prepare. Still too, as the members move down in their load bearing capacity, so does the

care with which they are prepared. For example, the common rafters are entirely pit sawn and butted and nailed in contrast to the way the primary members are treated.

Like the Russell House, the Manigault House is another example of the transition towards the king and queen post system during the early nineteenth century. This system allowed for wide spans using low-sloping roof forms and allowed for weight to be distributed from the ridge downward along the line of the roof.



Figure 59: Detail of queen post, tie beam connection, Joseph Manigault House (Image: B. Fortenberry)



Figure 60: Detail of principal rafter and common rafter false plate, masonry wall connection, Joseph Manigault House (Image: B. Fortenberry)



Figure 61: End king post, hip rafter detail, Joseph Manigault House (Image: B. Fortenberry)



Figure 62: King post detail, note double pegging into principal rafters, Joseph Manigault House (Image: B. Fortenberry)



Figure 63: Queen post, strut, and principal rafter connection detail, Joseph Manigault House (Image: B. Fortenberry)



Figure 64: Common rafter, purlin detail , Joseph Manigault Housel (Image: B. Fortenberry)



Figure 65: Through-tenon of purlin system, Joseph Manigault House (Image: B. Fortenberry)

Table 13: Joseph Manigault House framing schedule

Member	Dimensions	Species	Preparation	Joinery	Spacing	Notes
King Post	11" x 4"	Pine	Planed and Hewn	Tenoned and Pegged		
Queen Post	7-1/2" x 5"	Pine	Planed and Hewn	Tenoned and Pegged		
Struts		Pine	Planed and Hewn	Tenoned and Pegged		
Principal Rafters	10" x 5-3/4"	Pine	Planed and Hewn	Tenoned and Double Pegged		
Common Rafters	6" x 3"	Pine	Hewn and Pit Sawn	Butted and Nailed		
Hip Rafters	9" x 5"	Pine	Plane and Hewn	Tenoned and Pegged		
Purlins	4-1/2" x 7"	Pine	Planed and Hewn	Through Tenoned and Pegged		
Tie Beams	10" x 6-1/2"	Pine	Planed and Hewn			
False Plate	1-3/4" x 9-3/4"	Pine	Pit Sawn			

Aiken Rhett House

The Aiken Rhett House, first constructed in 1818 with substantial renovations first in the 1830s and again in 1858, is one of Charleston's most well-known nineteenth-century building. In terms of style, the building underwent radical transformation from a Federal five-bay wide and three-bay deep center passage house facing Judith street commissioned by merchant John Robinson, to a fashionable side passage Greek Revival entertainment house with double parlors and a ball room facing Elizabeth Street executed by the Aiken family. The Aikens crafted a quintessential urban layout with an enclosed rear courtyard with dependencies for the household's enslaved Africans, a laundry, carriage house, and even a pair of Gothic revival privies. While heavy alteration to the structure changed its circulation pattern, much of the original roof system, and a roof cistern, survive. Still, too, much of the rear yard retains its integrity, and has been the site of numerous archaeological investigations and a seminal paint study by Susan Buck. The site's integrity is a testament to the preservation ethic applied by the Historic Charleston Foundation when it acquired the property. Taking a hands-off approach, it retained much of the original finishes and framing systems that comprise the building today. While some framing can be seen as one traverses the spaces of the main house, much of it remains hidden behind the plastered walls. There are two scuttles that

provide access to the two section of roof systems, but for this investigation only the original 1818 range (running east-west) was examined.⁷⁵



Figure 66: Aiken Rhett house principal facade (Image: Library of Congress)

The original low-sloped hipped roof is pierced by the original chimney stacks which heated the entertainment spaces on either side of the central passage from the building's original iteration. The building does not take the form of a typical double house in that while it is five bays wide, the main depth of the house is only three short

⁷⁵ Poston, *The Buildings of Charleston: A Guide to the City's Architecture*, 605–609; Hudgins et al., *The Vernacular Architecture of Charleston and the Lowcountry 1670-1990*, 252–255.

bays deep, with a series of smaller rooms projecting to the rear from the main block. This arrangement allowed for the use of a common rafter roof with closely spaced rafters to carry the load of primary spans measuring some fifty-eight feet eight inches wide and just twenty-four feet ten inches deep. This is some ten-feet shorter than the narrowest of the earlier buildings discussed. Still too, the roof pitch is relatively steep for its short span, some fifteen feet two inches from the top of the joists to the ridge. The common rafters are sash sawn and tenoned and pegged at the ridge. They measure 5-3/4" tall and 2-3/4" wide. Each common pair is kept in tension by a sash sawn collar which is tenoned and single pegged into the commons rafters. They measure 5-1/2" tall and 3" wide. The hip rafters are 6-3/4" tall and 3-1/4" wide. They, too, are sash sawn. Here we see further evidence of the re-orientation of roof framing systems towards industrialization, the hip rafters are merely butted and nailed to the terminating common rafter pair with the cripple rafters butted and nailed to the hip rafters measuring 5-3/4" tall and 2-1/2" wide.

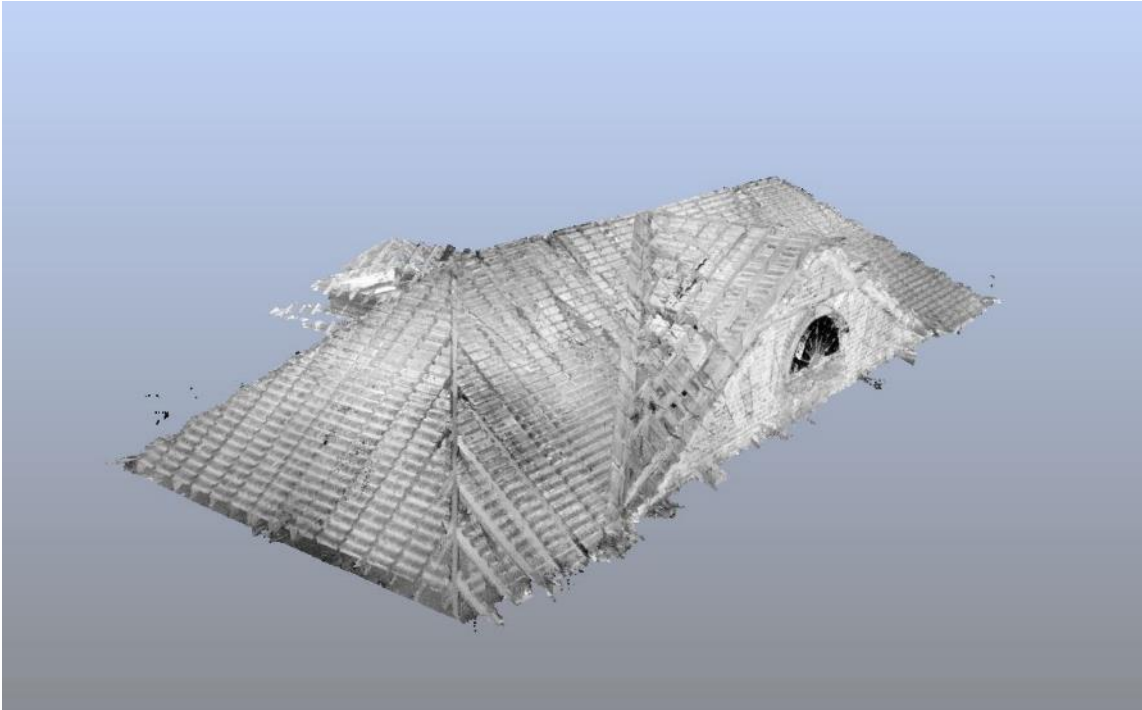


Figure 67: 3D perspective view, Aiken Rhett House roof

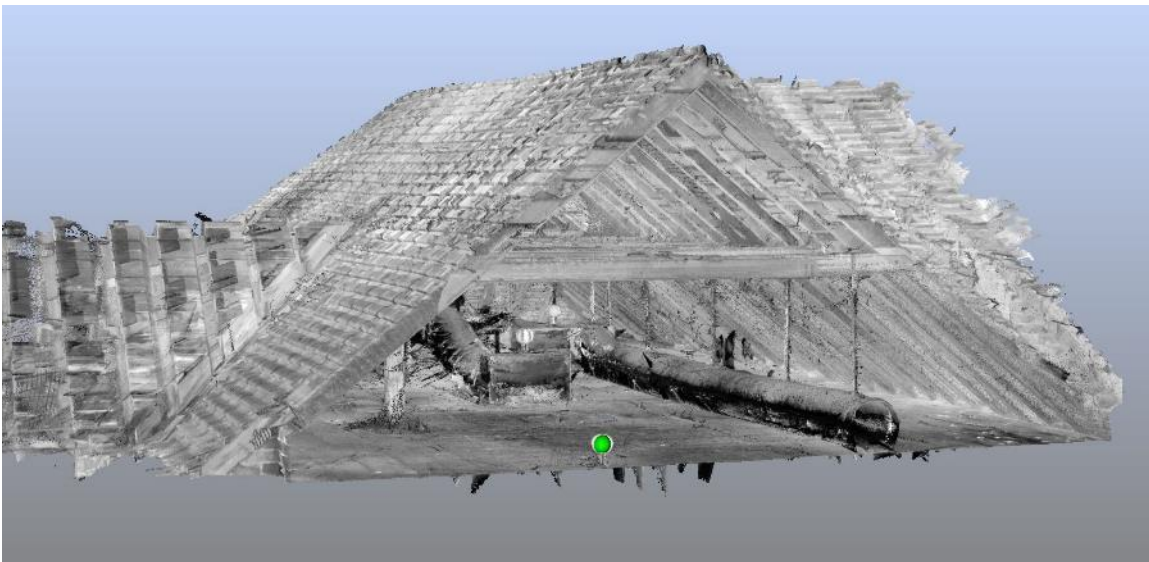


Figure 68: 3D elevation view, Aiken House roof

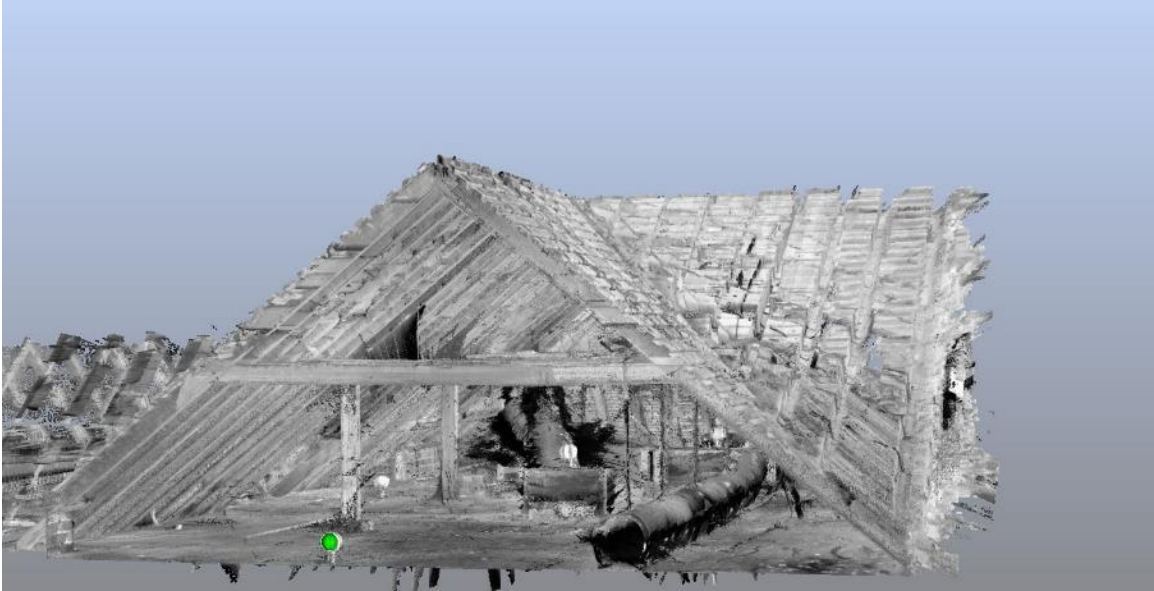


Figure 69: 3D rafter section, Aiken Rhett roof

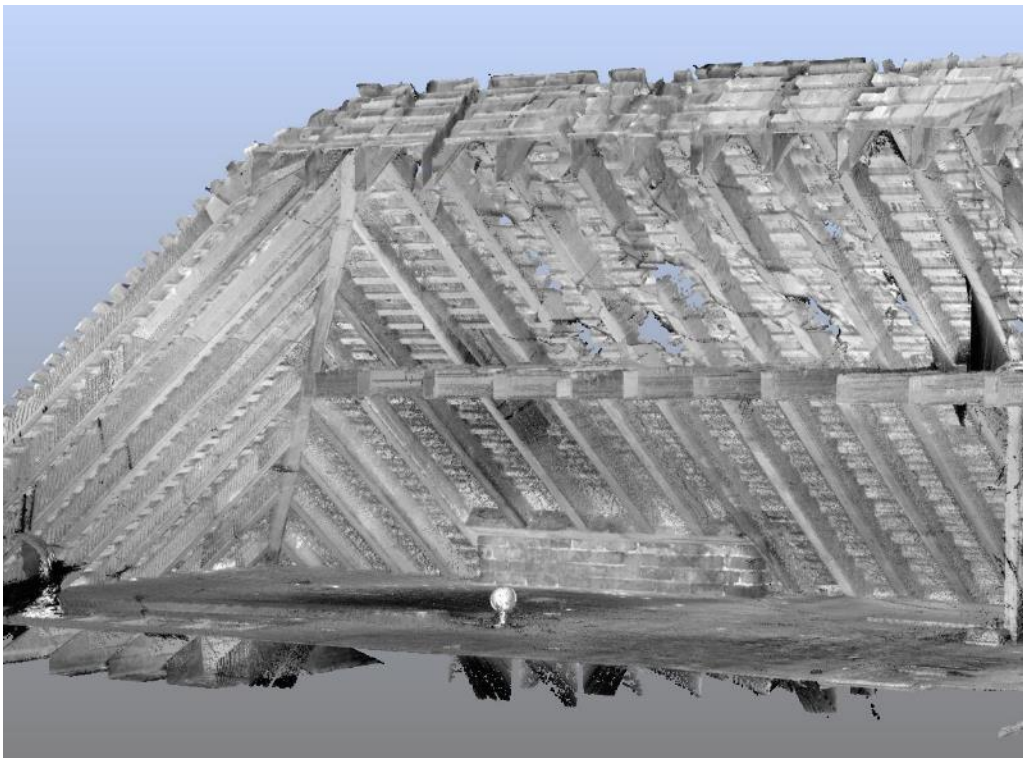


Figure 70: 3D elevation detail, Aiken Rhett roof

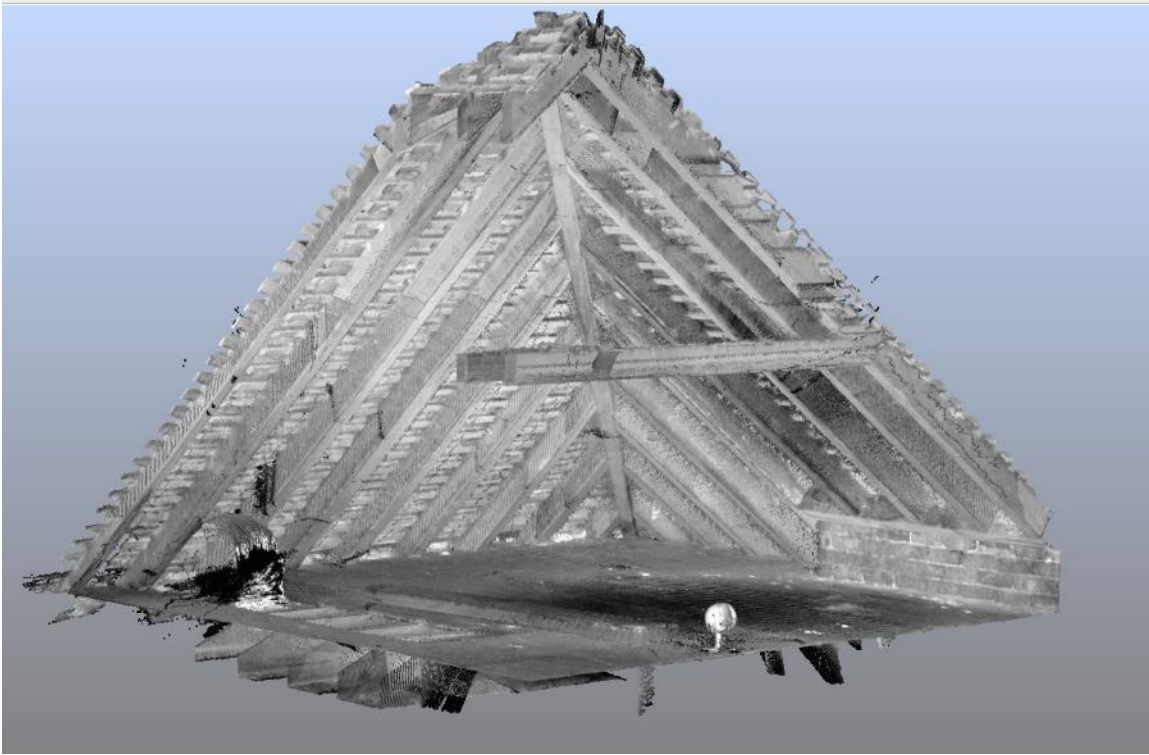


Figure 71: 3D hip rafter detail, Aiken Rhett roof

Table 14: Aiken Rhett Framing Schedule

Member	Dimensions	Species	Preparation	Joinery	Spacing	Notes
Common Rafters	5-3/4" x 2-3/4"	Pine	Sash Sawn	Tenoned and Pegged		
Collars	5-1/2" x 3"	Pine	Sash Sawn	Tenoned and Pegged		
Hip Rafters	6-3/4" x 3-1/4"	Pine	Sash Sawn	Butted and Nailed		
Cripple Rafters	5-3/4" x 2-1/2"	Pine	Sash Sawn	Butted and Nailed		

Discussion

This one example of roofing system in the early part of the nineteenth century is an index of industrialization. While builders were able to achieve an almost identical form as the Joseph Manigault House, the execution and process through which they arrived at that form—the frame and finish—of it was decidedly different than its earlier Georgian and Federal counterparts. The use of a wide but narrow roof profile allowed builders to use common rafters to carry the span rather than costly king or queen posts systems. Still, too, a truss system would have necessitated the employment of a skilled craftsmen to design and prepare the timbers by hand. Instead sash (or mill) sawn timbers could be relatively mass-produced sash sawn common rafters. While there is still joinery in the member connections, these were also common and simple mortise and tenon connections that would have not required the same level of artisanal skill as the king and queen post systems.

The Aiken Rhett House can then be seen as a surviving transitional space in Lowcountry framing evolution, a sea change where skilled artisans such as Villepontoux were no longer needed. New materials and mechanization allowed for the replication of fashionable forms using different means to achieve comparable results. In effect, John Robinsons (and later the Aikens) wanted to present themselves as fashionable and gentile elites through their architecture; they just didn't want to pay for it.

This example connects back to the sentiment of framing systems being hidden and yet an integral part of self-fashioning in the early modern period. While out of sight

they were inexorably linked to notions of display and elite status. While the framing system was hidden behind plastered ceilings and metal roof cladding, it still was a part of the wider socio-cultural positioning strategies of Charleston's early modern elites.

Broader Discussions

Thus in the discussion of both Anglican churches and domestic residences we see changing roof systems. In the church dataset it was the 1830 example of St. Thomas/St. Denis that demonstrated the shift in use of hand-prepared to mechanized systems of roof preparation. In the domestic residences we can see that same shift at the Aiken Rhett House where a change in roofing material allowed for a more affordable (and forward-looking) set of timbers to be utilized to construct a common rafter-roof holding the same fashionable low-sloped hip form in the northern suburbs of Charleston. While on the one hand these choices could be thought of as bourgeois, implements of the nouveau riche to cut costs, they could also be considered novel choices to leverage new technology in the building culture.

The transition from principal rafter hipped roof to king post truss system so late in the building evolution of Charleston is an interesting data point give the building's conspicuous place within the region's vernacular landscape. This transition is seen at the Miles Brewton and Heyward Washington Houses. As a major construction project, Brewton aimed to create and a fashionable a cosmopolitan urban setting on King Street.

Nonetheless, while framers at civic and religious sites such as St. Michaels Church, Pompion Hill, and St. Stephen's, located both within the heart of the urban landscape and in the rural hinterlands of the capital, were employing king post truss systems, Ezra White and his fellow framers deployed a principal rafter system at Miles Brewton. The wider question is if there is meaning in this choice. From a technological perspective the principal rafter roof is a less technologically advanced system than the truss systems. King posts (and later queen posts) were superior in carrying the loads of wider spans and the heavier stone roofing materials of the eighteenth and nineteenth centuries. The question is why here and why so late? Was this choice merely preference for White and his fellow framers? Perhaps embedded in these choices was a deliberate notion that this building was to be a symbol of the earlier and perhaps more revered steeply-pitched roof form, a traditional way of carrying the loads of a house over the more fashionable ideas of the truss system. Still, too, this choice might be directly a result of the desired height of the roof itself. Unlike the Heyward Washington House, Miles Brewton has a taller roof form making it more pyramidal than hipped. As such, perhaps the principal rafters were optimal to carry the steep loads down to the building's walls as opposed to the low-sloping profile of the Heyward Washington House. The transition to shorter spans and mechanized produced members as seen at the Aiken Rhett House was the inevitable transition for Lowcountry framers. The inevitability of cheaper, mass produced members that did not need to employ a skilled craftsman to design and execute a roof.

As the nineteenth century progressed the emergence of the single house form easily adapted or was perhaps also an adaptation to this industrialization. With shorter spans that ran deep into pre-defined urban lots, slight hipped common rafter roofs were the easiest solutions to these building problems that arose from the imposed town lots. Thus in this period we see the sorting experimentation of roof forms within the Charleston landscape, the working out of eighteenth century architectural building culture that eventually gave way to a form which was product of seventeenth century town planning.

CHAPTER SIX: FRAMING ENSLAVED LANDSCAPES

Plantation Slavery

The chattel slavery system provided the means through which planters and merchants accrued wealth and status. The study of the built environment of enslavement is one of the most important contributions of architectural historians and archaeologists to an engagement with the past. The greatest challenge to this goal is that so few of these buildings survive, and those that do have often been heavily altered. They survive poorest in the urban environments of Britain's former colonies. Kitchens, laundries, and dependencies historically dotted the urban landscape. However, today, as more and more people move into urban areas, these smaller ancillary structures that serve no modern function are threatened. In the last generation Charleston has lost dozens of its enslaved urban dwellings to the swelling population of the southern city. If not converted into posh houses for renters, they are often destroyed to make way for new structures set within historic yards. Some exceptions exist in Charleston, most notably the enslaved housing at the Aiken-Rhett House and the Heyward Washington House, both now cared for by the Historic Charleston Foundation and Charleston Museum respectively.



Figure 72: Aiken Rhett rear yard with outbuildings (Image: Library of Congress)



Figure 73: Heyward Washington House rear yard with outbuildings (Image: Library of Congress)

Because of their wall material, these masonry structures, were outliers even in their day. For this study they provide marginal framing information beyond rafter systems and so they have been omitted. Rural slave dwellings in contrast often have exposed internal framing covered by clapboards. Thus these structures provide an unparalleled window into the construction and framing techniques of this category of structures. While so much of the discussion of enslaved dwellings has focused on their spatial arrangement and how that relates to the broader system of enslavement in the British colonies, here I aim to begin to explore the techniques used to construct these structures as a departure to talk about the building culture of enslaved dwellings in the Lowcountry in future discussions.⁷⁶

In this chapter I provide a small dataset of rural enslaved dwellings as a counterpoint to the sophisticated carpentry of the Anglican edifices and private dwelling of the region's elite. Simple dwellings with exposed framing sit within the landscape as the residues of the enslavement system which provided the vehicle for White wealth in the eighteenth and nineteenth centuries. While just a small sample is presented in this discussion, it is the hope that this chapter will be a call-to-arms for a systematic and

⁷⁶ Edward A Chappell, "Accommodating Slavery in Bermuda," in *Cabin, Quarter, Plantation: Architecture and Landscapes of North American Slavery*, ed. Clifton Ellis and Rebecca Ginsburg (New Haven: Yale University Press, 2010), 67–98; Edward A Chappell, "Housing Slavery," in *The Chesapeake House: Architectural Investigations by Colonial Williamsburg*, ed. Cary Carson and Carl R Lounsbury (Chapel Hill: University of North Carolina Press, 2013), 156–78; Vlach, *Back of the Big House: The Architecture of Plantation Slavery*.

comprehensive recording of these buildings within the Lowcountry (and Carolina) landscape before more disappear.

Middleburg Plantation

Middleburg Plantation has some of the oldest surviving architectural fabric in the Lowcountry. The tract of land was originally granted to Benjamin Simons in 1693. By 1697 Simons had erected a dwelling on the property, traditionally believed to be the core of the existing dwelling on the property; though the actual date is likely far later. The Simon's family was one of the earliest Huguenot families to arrive in the Orange Quarter, and he methodically expanded his landholdings; one of the most notable expansions came when he donated two acres for the construction of Pompion Hill Chapel two miles to the east in 1706 after the Church Act.

The historic core of the main house consists of a pair of rooms divided by a H-shaped hearth. Interestingly guests enter directly into the smaller of the two room to the left (west), however there is evidence to suggest that the building plan originally comprised a lobby/porch entry that was then re-oriented to the existing condition today. A northern and eastern wings were added accounting for the odd connected hip roof line. While Middleburg is claimed, most famously to be the oldest standing wood frame building in Carolina, many of its most important features—its outbuildings—date to the late eighteenth and nineteenth century. Of particular note is the well-preserved rice barn which site to the east of the main house, with the archaeological remains of a

slave village in the interim space. Nonetheless, these structures provide some of the best surviving examples of plantation outbuildings and dependencies in the region. Archaeological excavations have taken place throughout the area around the main house, kitchen, and slave village to the east. Consistently the excavations provide occupational evidence across the site dating from the late eighteenth and early nineteenth century.⁷⁷



Figure 74: Middleburg southern facade (Image: B. Fortenberry)

⁷⁷ This data was recently entered in the Digital Archaeological Archive of Comparative Slavery (DAACS) as a part of the digital database's South Carolina archive. See DAACS.org.

Kitchen House

The kitchen house likely dates to the last quarter of the eighteenth century or even to the first quarter of the nineteenth. It is oriented roughly north to south in a perpendicular fashion to the main house, and is sited just to the north east of the main block. The space is divided into two rooms and is bifurcated by a stack which heats both spaces. There are two garret/loft spaces which communicate on either side of the stack. From the size of the hearth it seems likely that the southern room--the one nearest to the house--served as the kitchen. The northern space with a smaller hearth was likely a quarter, as there is no evidence the space was used as a laundry and possibly also a servants hall.

The building sits on a series of brick piers common for the Lowcountry. The need for these piers is even further illustrated by the fact that the north yard was flooded during the site visit. The framing of the building is exposed on the interior. It consists of common features in enslaved dwellings such as exposed studs with heavy corner posts, corner braces and a light common rafter roof.



Figure 75: Middleburg Kitchen (Image: B. Fortenberry)

The kitchen measures roughly twenty feet in length and eight feet wide. While its roofing material has been replaced, the common rafters appear to be original. They are hewn on the top and bottom faces and pit sawn on the sides. They measure 4-1/4" tall and 3" wide, tapering to 2-1/2" at the ridge where they are tenoned and single pegged into place. At the plates they are butted and nailed in place, but to a replacement plate—it is possible that they were originally carried by a slight wall plate that we have seen in other examples. Carpentry marks on the common rafters contain large Roman numerals as assembly marks and they still retain a black soot from rising smoke at the ridge. The common rafters are generally spaced on 11-3/4" inch centers in

the two primary rooms and spaced on 1'-9" centers on either side of the stack. Sixteen pairs of common rafters plus two end pairs comprise its roof system. Although the wall plates appear to be twentieth-century replacements, the joists, corner posts, braces, and studs survive. The joists measure 4-1/4" tall and 2-3/4" wide and are half-lapped over the new plates. Some are replaced but the original members are hewn on the horizontal faces and pit sawn on the vertical faces. The corner posts are 6" square and are tenoned into the wall plates. This, I would guess, is the original relationship between the vertical and horizontal members here. Braces are similarly hewn on the upper and lower faces and pit sawn on the inward and outward faces. They are tenoned and pegged into the corner posts. They measure 6-1/2" tall and 4-1/4" deep. A majority of the studs appear to be original. They are tenoned and pegged into both the wall plate and the sills. They are pit sawn on the inward and outward faces and hewn on the secondary side faces. They measure 3-3/4" wide and 2-1/4" deep, and are set on 20" centers. Exterior cladding has been replaced, but it likely comprised clapboard nailed to the studs and posts.



Figure 76: Common rafter roof detail, Middleburg (Image: B. Fortenberry)



Figure 77: Corner post detail, Middleburg (Image: B. Fortenberry)

Table 15: Middleburg Plantation Framing Schedule

Member	Dimensions	Species	Preparation	Joinery	Spacing	Notes
Common Rafters	4-1/3" x 2-1/2"	Pine	Hewn and Pit Sawn	Tenoned and Pegged	11-3/4" to 1'-9"	
Joists	4-1/4" x 2-3/4"	Pine	Hewn and Pit Sawn	Lapped		
Corner Posts	6" x 6"	Pine	Hewn and Pit Sawn	Tenoned		
Braces	6-1/2" x 4-1/4"	Pine	Hewn and Pit Sawn	Tenoned and Pegged		
Wall Studs	3-3/4" x 2-1/4"	Pine	Hewn and Pit Sawn	Tenoned	20" centers	

Hopsewee Plantation

Hopsewee Plantation sits on the north banks of the north Santee Delta. While site histories maintain that the building dates to the 1740s, the current building appears to date to the later portion of the eighteenth century, with common, late-Georgian and early Federal details. Thus, this build is either some iteration of this earlier structure, or more likely the second Great House on the site. Still too, the center-passage, double-pile structure seems to more easily fit within this later period given its plan. Despite the boasting of the owners that the rear stair hall is a diagnostic feature which dates the building to the first half of the eighteenth century, roof details in the main house show this rear stair passage was in fact an added feature.



Figure 78: Hopsewee rear facade (Image: Library of Congress)

Despite the question of date, the five bay wide and three bay deep Great House retains two of its rear (northern dependencies), each oriented east to west, similar to the Great House. The two outbuildings were likely used as kitchen-quarters for the main house; they each appear to be double celled, but not in a traditional way. The lobby plan structures the space's strange orientation. Occupants spilt the rooms on the eastern side of the hearth stack while the opposite room was reserved for kitchen functions. receive one half of each of the two rooms on either side of the two rooms. This feature is illustrated by the divided hearth on the eastern side of each of the rooms in both of

the buildings. From all indications this seems to be an original arrangement of both structures.



Figure 79: Eastern outbuilding, Hopsewee (Image: B. Fortenberry)

Framing

The eastern structure was closely examined for this study. It measures thirty-two feet-six inches wide and fifteen-feet six-inches deep. The exterior shingle cladding appears to be a modern replacement as a part of the sites cultural tourism focus. Still too, as with many of the enslaved dwellings in the Lowcountry, the roof appears to be entirely

replaced sometime in the twentieth century. Both buildings are raised on brick piers. Like we saw at Middleburg, the internal framing is exposed with all the principal framing components surviving. The corner posts are hewn and planed and are roughly square at 5-1/2" wide and 6" deep. The studs measure 4" wide and 3" deep and have been sash sawn on all four faces. The stud pattern varies from front to back walls. On the southern wall (facing the main house) studs are set on 21" centers. They are tenoned and pegged at both the wall plate and the sills. This is distinctive feature Lowcountry framing as discussed below. Wall plates are hewn on the top and bottom faces and are pit sawn on the inward and outward faces. They measure 5-3/4" tall and 4-3/4" deep. The tie beams are of identical preparation and measurements. The tie beams are tenoned into the corner posts while the plates are lapped over the posts on the rear (south side) and the tie beams are tenoned into the wall plates in which then the corner post is tenoned on the north side of the building. There appears to be some replacement of the studs on the eastern wall; they are circular sawn and butted and nailed into place (see Appendix 1 for a plan).



Figure 80: Northern wall studs, Hopswee outbuilding (Image: B. Fortenberry)



Figure 81: Plate and tie beam detail, Hopsewee (Image: B. Fortenberry)



Figure 82: Corner post detail, Hopsewee plantation (Image: B. Fortenberry)

Table 16: Hopsewee Outbuildings Framing Schedule

Member	Dimensions	Species	Preparation	Joinery	Spacing	Notes
Corner Posts	5-1/2" x 6"	Pine	Hewn and Planed	Tenoned		
Wall Plates	5-3/4" x 4-3/4"	Pine	Hewn and Pit Sawn	Lapped		
Studs	4" x 3"	Pine	Sash Sawn	Tenoned Pegged	21" centers	

McLeod Plantation

McLeod plantation, located outside of Charleston on the banks of the Wapoo and Stono rivers, sits within a busy commuter district. Nonetheless, within its bounds it boasts some of the best examples of nineteenth-century outbuildings in the region. While the land was first granted in the late seventeenth century, the tract did not come under any major cultivation until the eighteenth century. But it was not until the 1858 that major “improvements” were made to the property when it was purchased by cotton planter William McLeod. He commissioned a new Great House as well as a string of dependencies including five enslaved dwellings, a kitchen, dairy, and storage room.⁷⁸

⁷⁸ Hudgins et al., *The Vernacular Architecture of Charleston and the Lowcountry 1670-1990*, 287–291. Field notes on these buildings were also take by the Colonial Williamsburg Foundation’s Architectural Research Department as part of their Agricultural Building’s project.

While there were likely enslaved dwellings on or near the existing Great House, the preparation of the timbers (i.e., sash sawn preparation) likely indicate that these buildings are a product of McLeod's ownership of the property.

While McLeod boasts several candidates for framing discussion, here just one structure is explored as it is the best (and most accessible) example on the property, known as Outbuilding 2. This is the second building in the slave quarter row.



Figure 83: Slave quarters McLeod. Building Two is in the center of the frame (Image: B. Fortenberry)

The building is three bays wide and one bay deep, with a central entrance. Similar to many contemporary examples, a single end chimney on the eastern end. The building is twenty-feet-six inches in length and twelve-feet-six-inches deep. It retains much of its clapboard exterior. Inside, as we have seen at Hopsewee and Middleburg, exposed framing allows for a detailed investigation of the various components.

The roof comprises nine pairs of common rafters which are tenoned and pegged at the ridge. They are close to square at 3-1/4" tall and 3" wide; each common rafter is sash sawn on all faces. At the wall plates the rafters are butted and nailed in place, spaced on average 2' apart. Supporting collars span the rafter pairs. They are lapped and pegged and measure 4" tall and 2" deep. The wall plates are similar roughly square being 4-1/4" tall and 4" deep, all faces are sash sawn. Corner posts are tenoned upwards into the wall plates and measure 4-3/4" inches square. The tie beams of congruent size to the wall plates are tenoned and pegged into the wall plates. These members are all sash sawn. The braces are slightly more robust than the corner posts, being 5-1/4" tall and 4" deep. They are tenoned and pegged into the corner posts and sill and are prepared by a sash saw. Studs are sash sawn and are heavier than earlier examples. They measure 3-3/4" wide and 3" deep. They, too, are tenoned and pegged into the plates and sills, an interesting feature given the building's mid-nineteenth century construction date. On average these vertical members sit on 21" centers. The sills are of similar heft to the wall plates measuring 4-1/2" tall and 4" deep. The

intermediate joists measure 4" tall and 3" wide. These members too are sash sawn, the joists are lapped over the wall plates.

Table 17: McLeod Framing Schedule

Member	Dimensions	Species	Preparation	Joinery	Spacing	Notes
Common Rafters	3-1/4" x 3"	Pine	Sash Sawn	Tenoned and Pegged at the ridge; Butted and Nailed at the wall plate	2'	
Collars	4" x 2"	Pine	Sash Sawn	Lapped and Pegged		
Wall Plates	4-1/4" x 4"	Pine	Sash Sawn	Lapped		
Sill Plates	4-1/2" x 4"	Pine	Sash Sawn			
Tie Beams	4-1/4" x 4"	Pine	Sash Sawn	Tenoned and Pegged		
Joists	4" x 3"	Pine	Sash Sawn	Lapped		
Braces	5-1/4" x 4"	Pine	Sash Sawn	Tenoned and Pegged		
Wall Studs	3-3/4" x 3"	Pine	Sash Sawn	Tenoned and Pegged	21" centers	

Silver Hill

North of Georgetown proper on the Sampit River is Silver Hill Plantation (also known as Mount Pleasant House), which is now folded into the Friendfield Planation. The tract of land was granted in 1734 was a center of rice production throughout the eighteenth and early nineteenth centuries.⁷⁹

The main house (c.1794), which has now been heavily worked over, featured a clapboard façade, hipped slate roof, and was five bays wide and three bays deep. It has a nineteenth century shed addition off the read of the main block. The building stood on brick piers with two chimney stacks which heated the principal rooms. Inside a center passage provided access to two entertainment spaces on the first floor. While the plantation boasted at one time over thirty-three enslaved dwellings dating to the the nineteenth century, just six remained by the 1870s according to the National Register nomination form. Unfortunately, by the 1990s the property had fallen into disrepair and all the outbuildings were lost. Fortunately, the Colonial Williamsburg Architectural Research Department recorded several of the building in the 1980s as a part of the Agricultural Buildings Survey of English colonies.⁸⁰

⁷⁹ Suzanne Cameron Linder and Marta Leslie Thacker, *Historical Atlas of the Rice Plantations of Georgetown County and the Santee River* (Columbia: South Carolina Department of Archives and History, 2001), 256–259.

⁸⁰ These building details are drawn primarily from field drawing completed by Willie Graham of the Colonial Williamsburg Foundation as these structures are no longer in existence.

House number four was recorded at Silver Hill. It is a three bay wide, one bay deep, timber-framed structure with an original chimney abutting the western wall. It measures twenty-four feet wide and eighteen-feet-six-inches deep. Common rafters were tenoned and pegged at the ridge and butted and nailed to a thin false plate which sat directly on top of the wall plates. The tie beams were lapped over the wall plates and the corner post was tenoned and pegged into the wall plate. The sills appear to mortise together at the corners with the corner posts tenoned in from above. Much like what we have seen elsewhere, the studs are tenoned to both the wall plates and sills, however here there does not appear to be evidence of pegging. Corners are heavily braced. The braces are tenoned and pegged into the corner posts.



Figure 84: Slave quarter, Silver Hill Plantation (Image: W. Graham)



Figure 85: Corner post detail, Silver Hill Plantation (Image: W. Graham)

Table 18: Silver Hill Framing Schedule

Member	Dimensions	Species	Preparation	Joinery	Spacing	Notes
Common Rafters		Pine	Sash Sawn	Tenoned and Pegged		
Tie Beams		Pine	Sash Sawn	Lapped		
Corner Posts		Pine	Sash Sawn	Tenoned and Pegged		
Studs		Pine	Sash Sawn	Tenoned and Pegged		

Discussion

These four examples provide a concentrated overview of the framing technology of the Lowcountry's enslaved dwellings from the eighteenth and nineteenth centuries. Some distinct patterns arise. First each of these buildings sit on brick pier foundations, while not tremendously surprising, it is a unifying characteristics. Second, the use of exposed internal framing also unifies these structures in their original condition. While later matchboard sheathing walls hide framing in later modifications, historically it seems that little to no plaster or finish was applied to internal walls.

Each of these structures contain a common rafter roof which is tenoned and pegged at the ridge. This would seem like an unusual step to make in buildings this small (and in the case of McLeod) being so late in date. Butting and nailing at the ridge, with perhaps a ridge board, would seem to be a more expected practice for this status of structure, especially when the common rafters in several examples are simply butted

and nailed to wall plates. But the most striking characteristics of these structures is the fact that generally the walls studs are tenoned and pegged into place in most instances and on average sit on 20-21" centers. In examples north in Virginia, and indeed in higher status houses in the Chesapeake the practice of butting and nailing studs to plates and sills is slowly adopted, uncommon before the Civil War except for partitions.⁸¹ Here we see the practices of joining these non-principal members carry through the nineteenth century, as almost an unnecessary and anachronistic building practice, a mark of Lowcountry vernacular.

More enslaved (and Free Black) dwellings need to be added this dataset to better understand the Lowcountry's iteration of framing technology. Still too, while providing less data, urban examples must also be integrated into a wider discussion to better understand the relationship between town and country contexts. And finally, a wider comparative net needs to be cast over these types of buildings to understand their varied social contexts in the British Atlantic world.

⁸¹ Willie Graham, "Preindustrial Framing in the Chesapeake," *Perspectives in Vernacular Architecture* 9 (2003): 179–96.

CHAPTER SEVEN: LOWCOUNTRY FRAMING IN CONTEXT

Framing the Data

In Chapters Four, Five, and Six, a small, targeted dataset was presented that explored the evolution of Lowcountry Framing traditions during the eighteenth and early nineteenth centuries. Each site represented a key aspect of that evolution. The aim was to provide both rich and raw data as well as an interpretive narrative that articulated each site's place within the wider process.

Stepping back looking beyond the function of buildings to the wider timber-framed building culture of the Lowcountry, several patterns and characteristics emerge. First within public buildings such as Anglican churches, fashionable and innovative truss systems already being used in London and major English cities were quickly imported and implemented across the region in both Charleston and the parishes. Much of this is likely a product of the rebuilding episode of the mid-eighteenth century when many of the civic buildings in the colony were lost to storms and hurricanes. The desire it seems was to rebuild not just in brick, but import the most robust truss systems to cover them.

In private dwellings, elite members of the Lowcountry held steadfast to principal-rafter roofs throughout the eighteenth century until the last quarter when changing tastes in roof forms and wider building spans encouraged the use of king and queen post truss systems. This period of building however did not last, as the industrialization process of the early nineteenth century unfolds these artisan-

dependent truss constructions became too costly and were eventually abandoned for the mechanized process of mill sawing by the end of the first quarter of the nineteenth-century. Coupled with this transition was the emergence of the single house form across the peninsula which permitted the spanning of domestic spaces with closely framed common rafters, produced seemingly with ease by mills. We see the creeping of this technology into the building culture by the late 1760s when the Miles Brewton House employed sash-sawn common rafters. This pattern of employing non-load bearing members produced by mill saws continued into the nineteenth century before the rapid shift to the wholesale industrialization of the process. What is striking is how long it takes this process of industrialization to take hold. By the turn of the nineteenth century, Charleston buildings are already experimenting with what would become the single house form, even if the wider lots of wealthy residences give them a wide spatial berth, particular at the Nathaniel Russell House and the Joseph Manigault House. Both these structures are longer than they are wide to the street frontage. They could have very easily been capped with common rafter roofs. Instead though Charleston builders hold steadfast to the truss construction well into the nineteenth century, when from an engineering perspective it was not needed. Trusses were tried and true in both public and private dwellings and so why change? This seems to relate to a generational if not contextual socio-economic milieu. Trusses were expensive, professionally crafted, and so they belonged in elite residences. We should view this lag time as the persistence of a

building conservatism, an argument that could be buttressed by adding more data to this discussion.

Framing in enslaved dwelling joinery stays relatively constant to the changing nature of Great Houses and White residences. Studs, common rafters, braces, and corner posts remain tenoned and pegged in place throughout the eighteenth and nineteenth centuries. At their core, scholars should view framing in these buildings as the implementation of building practices at their purest forms; no frills. Thus enslaved buildings are a window into the answer to the question of “how does one building a building?”. What does change is the preparation of the members themselves. And so while we see pre-industrialized members tenoned and pegged into place at Middleburg, mill sawn members retain the same joinery despite the industrialized process. The reasons for this are unknown. When compared to Virginia where non-load bearing members are often lapped and nailed in to place, the retention of this joinery is a mystery. It is almost as if there was no sorting, or trial and error process for these builders, they decided in the eighteenth century how they would frame a building and stuck with it over generations.

One of the underlying assumptions of this study is that the Lowcountry had close social, economic, and familial ties to the Caribbean that would inevitably influence its vernacular practices. But the data does not support the case. The use of flat, rectangular false plates, truss systems that employ common rafters, and the use of exposed

articulated frames in rural contexts all point to a closer alignment with their northern Chesapeake neighbors than their islander cousins. What is distinct, however, is the variation in which walls assembly took place.

The evolutionary timing of the introduction of truss systems seems to be comparable as well into the 1770s and 80s these systems begin to make their way into domestic residences on both the northern and southern sides of the Chesapeake Bay. Thus connections of proximity and latitude seem to outweigh the ties of longitude. The Virginian framing tradition was well adapted to the environs of the Chesapeake and could thus be said to have been adopted by Carolinians with subtle alterations. This would make sense given the mature nature of the Chesapeake Frame. It had been established, refined, and embedded into cultural practices by the eighteenth century, and as such was a no-risk implementation. Moreover, it is likely by the middle of the eighteenth century that trained artisans and builders were already making the four-hundred-mile journey south to the Lowcountry from the Chesapeake.

There might be closer alignments with points south in the Caribbean that have yet to be discerned based on the paucity of evidence. What can be said is that in the broadest possible sense the Lowcountry tradition is a progeny of English framing set forth across the Atlantic basin.

Components of Further Analysis

The components of further analysis are both spatial and temporal, and consist of further data collection both within and beyond the Lowcountry. In the widest frame, a regional comparison of the Lowcountry to the wider colonial world would prove fruitful. First as described above the closeness of Lowcountry framing seems to be connected to the traditions of Virginia, as primarily outlined by Graham. Thus, a wider and more explicit capture of the symmetries and divergences of these building culture would be an important avenue of further research. From a socio-cultural perspective Jamaica, would provide a useful comparative point to the Lowcountry. While the Lowcountry's wealth never reached the heights of Jamaica, both colonies reached their apogee in succession, the Lowcountry in the last third of the eighteenth century and Jamaica in the first third of the nineteenth century, and both relied on plantation systems to fuel the wild aspirations of wealth and status of their planters and merchants. These symmetries of wealth translated in built environments of similar scale—massive urban town houses and extravagant Great Houses on plantations. Historians have already begun to explore the connections between Kingston and Charleston from a socio-economic perspective, and so detailed the evolution of framing traditions in these two colonies would contribute to the wider narrative of building culture in the British Atlantic.⁸²

⁸² Trevor Burnard and Emma Hart, "Kingston, Jamaica, and Charleston, South Carolina A New Look at Comparative Urbanization in Plantation Colonial British America," *Journal of Urban History* 39, no. 2 (2013): 214–34; Emma Hart, "'The Middling Order Are Odious Characters': Social Structure and Urban Growth in Colonial Charleston, South Carolina," *Urban History* 34, no. 02 (2007): 209–26.

Comparative Frame

Since the 1980s, historians have systematically begun using the Atlantic world as a frame of comparative reference. Still too, some architectural historians have taken a similar tact in their wide-sweeping perspective of Atlantic connections. But the field is still rooted in regionalism. Even when architectural historians work within these comparative frameworks, edited volumes often have authors write about their home turf.⁸³ Data rich approaches such as the one presented here will add the meat and bones to a comparative approach to the British Atlantic world.⁸⁴

Sacred Data

As discussed in Chapter Four, one of the major limitations to the Anglican church data is the fact that there are not buildings from the formative years of the colony represented in the dataset. These buildings simply don't survive, are inaccessible, or access was not granted during the study period. Thus to answer the question of the development of framing in Anglican architecture there needs to be an assessment of these surviving buildings. Of particular note would be St. James Goose Creek and Strawberry Chapel, St.

⁸³ See Shields, *Material Culture in Anglo-America: Regional Identity and Urbanity in the Tidewater, Lowcountry, and Caribbean*. One way to overcome the challenges of expertise in multiple regions by scholars is to co-author scholarship with experts from other regions. In Historical Archaeology, such an approach has proven useful in drawing out the connectedness of Atlantic world regions see Dan Hicks and Mary C Beaudry, eds., *The Oxford Handbook of Material Culture Studies* (Oxford: Oxford University Press, 2010).

⁸⁴ Bernard Bailyn, "The Idea of Atlantic History," *Itinerario* 20, no. 01 (1996): 19–44; Herman, *Town House: Architecture and Material Life in the Early American City, 1780-1830*.

Helena's Parish Church all of which date to the first half of the eighteenth century and have accessible roofs. Their study will add greatly to the dataset moving forward.

Still, too, the rural churches presented in rich detail need to be married with the urban church data. Detailed framing schedules from St. Michael's, St. Philips', First and Second Scots Church and the Unitarian Church should be charted. Once complete (and some of these structures have already been examined), a comprehensive analysis of the Lowcountry's Anglican edifices can be undertaken.⁸⁵

With the Lowcountry Anglican churches understood, a more nuanced comparison of Anglican churches in the British Atlantic world is possible. Colonies such as Bermuda, Jamaica, and Virginia are prime foils to the Lowcountry.⁸⁶ Jamaica especially would be an ideal candidate for a detailed comparative study for reasons outlined above. More acutely for church data, the relationship between city churches in Kingston and Spanish Town with those in the rural parishes and towns of the north coast in places like Falmouth, Montego Bay, and St. Ann's Bay. While Nelson has explored these churches from a liturgical perspective, their building culture has yet to be explored.⁸⁷

⁸⁵ Pamela Marotta Kendrick, "The Charleston Trussed Roof : A Study of the Development and Implementation of a Structural Solution from 1740-1820" 2013; Kendrick's analysis includes a framing schedule for St. Michael's Church.

⁸⁶ Unfortunately, Barbados does not retain any of its seventeenth or eighteenth century churches.

⁸⁷ Louis P Nelson, "Building Cross-Wise: Reconstructing Jamaica's Eighteenth-Century Anglican Churches.," *Jamaican Historical Review* 22 (2003): 11–39; Louis P Nelson, *Architecture and Empire in Jamaica* (New Haven: Yale University Press, 2016).

To the north in the Chesapeake a similar if not as grand Anglican landscape would provide fruitful comparison given the closeness of building cultures discussed above. Dell Upton has begun to explore the framing systems in the region's churches in *Holy Things and Profane*.⁸⁸

Domestic Data

Similarly questions of domestic and private dwelling framing evolution remain. While the dataset presented here focused on the Charleston apogee during the eighteenth and nineteenth centuries, the periods before and after this rise are still unclear.

Archaeological data from early excavations such as those at Charleston Town Landing and work completed by Martha Zierden at Wilotown.⁸⁹ An analysis of these early examples of earthfast architecture will directly interface with the wealth of Chesapeake data that has been compiled and analyzed over the last forty-years of study in the region.⁹⁰ More work on the industrialized processes also needs to be undertaken. While the data here ended with a full industrialized frame at the Aiken Rhett House, beyond this early example there is a further evolutionary trajectory that needs to be explored.

⁸⁸ Dell Upton, *Holy Things and Profane: Anglican Parish Churches in Colonial Virginia* (New Haven: Yale University Press, 1987).

⁸⁹ Michael J Stoner and Stanley South, "Exploring 1670 Charles Towne: 38CH1A/B, Final Archaeology Report," 2001.

⁹⁰ Cary Carson et al., "New World, Real World: Improvising English Culture in Seventeenth-Century Virginia," *The Journal of Southern History* 74, no. 1 (2008): 31–88; Carson et al., "Impermanent Architecture in the Southern American Colonies"; Graham et al., "Adaptation and Innovation: Archaeological and Architectural Perspectives on the Seventeenth-Century Chesapeake."

More pointedly, there is likely great nuance in the varied construction of nineteenth century frames especially within the context of the single house. Additionally, for comparative data, Jamaica's plantation landscape presents a wealth of cognate architecture for comparative studies, such as Good Hope, Green Wood, Rose Hall, and Castle Wemes.⁹¹

Enslaved Dwelling Data

More examples of enslaved dwellings need to be added to this dataset to fully comprehend its evolution. The spatial apartheid of the Lowcountry plantation landscape as well as the spatially defined areas of urban plantations permit the study of enslaved dwellings. Time is of the essence to document these structures in the region. A comparative study of the enslaved dwellings of the midlands and upcountry will provide a perspective on the differing construction methods across the Carolina colony during and after the Lowcountry's apogee.⁹² Wider comparisons to the Chesapeake can easily be made at this point most especially with recent publications from Colonial Williamsburg as well as the state-wide survey of architectural and archaeological data of enslaved dwellings completed by the Virginia Slave Dwelling database championed by

⁹¹ Edward A Chappell, *Beyond Falmouth: Early Jamaican Buildings*, n.d.

⁹² Carter L Hudgins, "Backcountry and Lowcountry: Perspectives on Charleston in the Context of Trans-Atlantic Culture, 1700-1850," *Historical Archaeology* 33, no. 3 (1999): 102–7; David Colin Crass, Bruce R Penner, and Tammy R Forehand, "Gentility and Material Culture on the Carolina Frontier," *Historical Archaeology* 33, no. 3 (1999): 14–31.

Doug Sanford and Dennis Pogue.⁹³ A similar if not congruent system must be established in the Lowcountry. Work still needs to be accomplished in the Caribbean to be able to complete similar comparisons of framing technologies in the region.

Framing the Farewell

Extracting detailed framing information from historic structures is a difficult task. Often times architectural historian, archaeologists, and historians look for the wide obvious answers to vernacular traditions. But if the time is taken to extract exact information from individual framing members, more nuanced and detailed interpretations can enrich our understanding of the historic built environment. It is no easy task. But if the time is taken we as researchers can not only better study the past but also protect it for the future.

⁹³ Chappell, "Housing Slavery"; Douglas Sanford and Dennis Pogue, "Virginia Slave House: An Architectural, Archaeological, and Documentary Archive," n.d., vaslavehousing.org.

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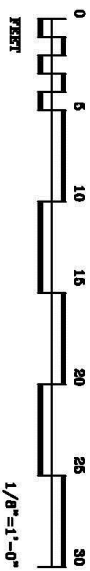
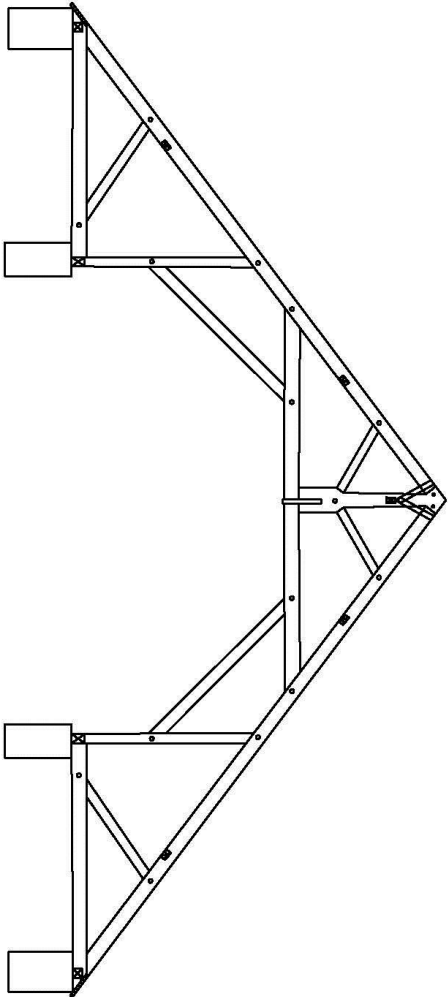
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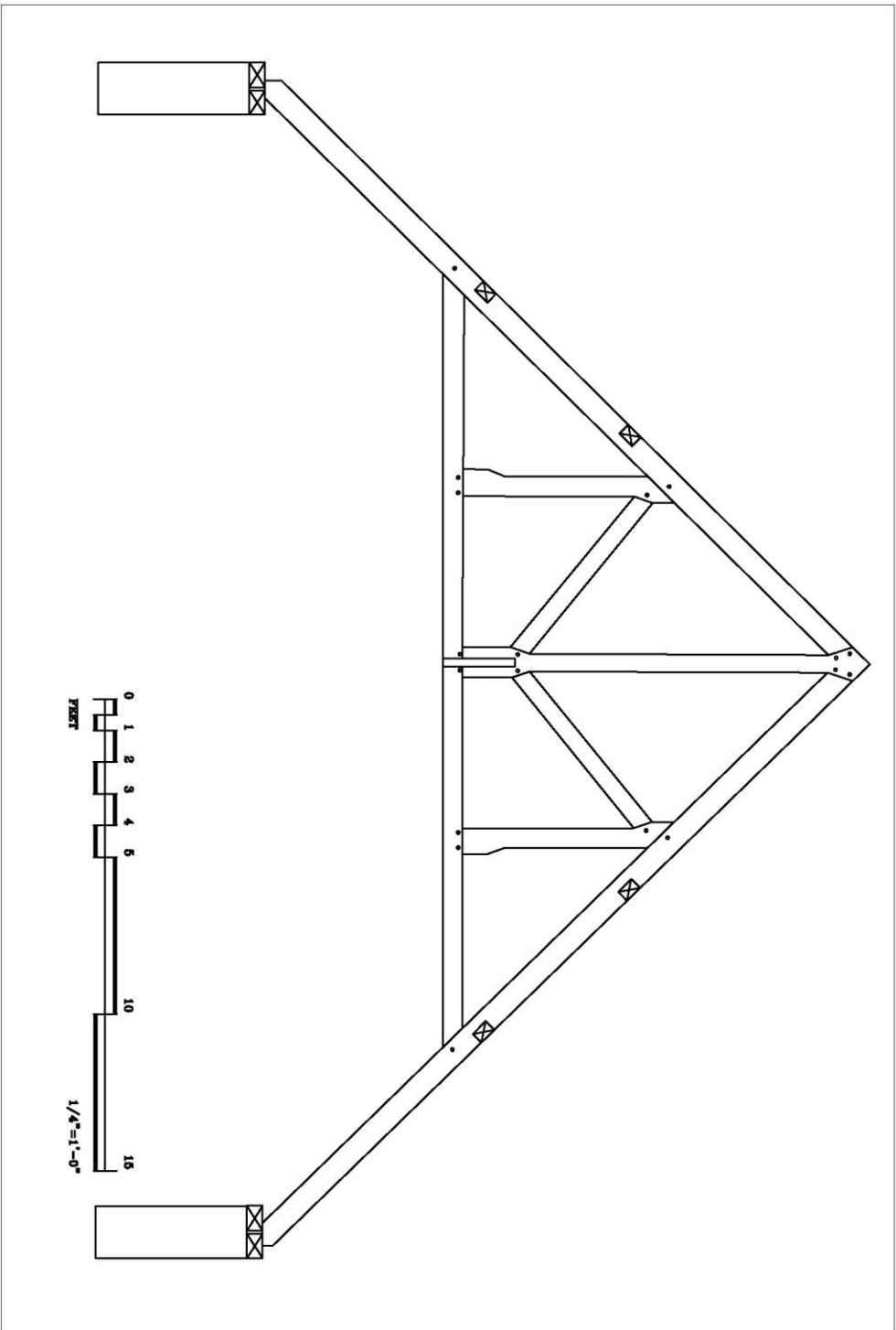
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APPENDIX 1: SUPPLEMENTAL DRAWINGS

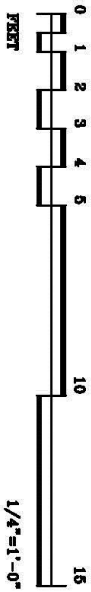
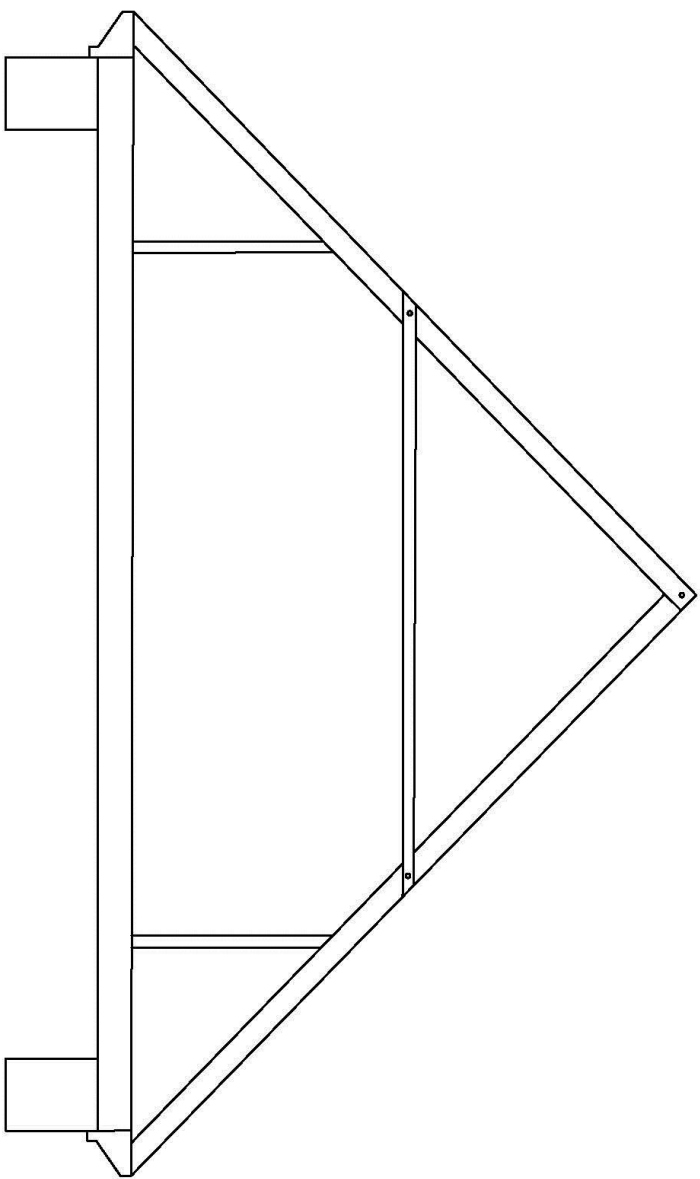


Prince George Winyah

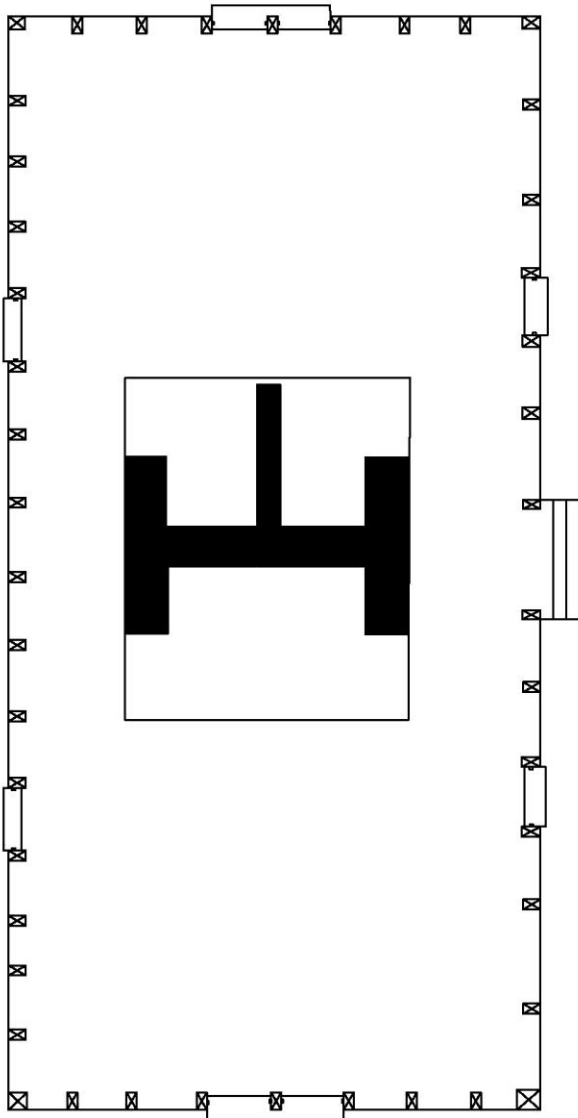
Georgetown, SC



Pompton Hill Chapel
Huger, SC



St. Thomas/St. Denis
Huger, SC



Hopsewee Plantation
Santee Delta, SC